5-9-2012

A Multi-Component Intervention to Reduce Alcohol Consumption in College Freshmen

Kimberley L. Jelinek
Valparaiso University

VALPO

A MULTI-COMPONENT INTERVENTION TO REDUCE ALCOHOL CONSUMPTION IN COLLEGE FRESHMEN

by

KIMBERLEY L. JELINEK

EVIDENCE-BASED PRACTICE PROJECT REPORT

Submitted to the College of Nursing

of Valparaiso University,

Valparaiso, Indiana

in partial fulfillment of the requirements

For the degree of

DOCTOR OF NURSING PRACTICE

2012

Student Date 5/9/12

Advisor Date 5/9/12

DEDICATION

To my niece and nephews, Maggie, Henry, and George, who were all born after I became a doctoral student, I promise to be a better Aunt. To my fiancé, Leonard, who I met half-way through the doctoral program, thank you for your patience and support. I promise to give you the time, attention, and love that you need and deserve. To my parents, thank you for encouraging me to always perform to the best of my abilities.

ACKNOWLEDGMENTS

The project leader would like to acknowledge the wise guidance of Dr. Elise Alverson in the completion of this EBP project. Special thanks goes to all freshmen students who participated in this project. In addition, the following individuals must be recognized as they were instrumental in the planning and implementation of this project: the University's Dean of Students, the Director of the Student Counseling and Developing Center, the Coordinator of Office of Drug and Alcohol Education, the Director of the University Health Center, the Assistant Dean of Residential Services, Residential Learning Coordinators, Resident Assistants, members of Boosting Alcohol Consciousness Concerning the Health of University Students (BACCHUS) and Greeks Advocating for Mature Management of Alcohol (GAMMA) peer group, nursing research students, CORE faculty, and information technology personnel.

TABLE OF CONTENTS

Chapter **Page**

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

ABSTRACT

Alcohol consumption is a health concern on all college campuses in the United States. College students' alcohol consumption is a highly prevalent behavior, with 44% reporting that they are consuming alcohol at the binge level or greater (Wechsler & Nelson, 2008). The purpose of this evidence-based practice (EBP) project was to answer the clinical question: In college freshmen, how does a multi-component intervention influence alcohol consumption over a four-month period? The Transtheoretical Model of Behavioral Change (TTM) and Diffusion of Innovations (DoI) were used to guide the project. Evidence demonstrates that implementing brief intervention, promoting substance-free events, and increasing campus alcohol policy awareness has achieved success in reducing alcohol consumption in college students. After gaining the support of key stakeholders at a private mid-western university, decisions were made to implement an EBP project to reduce alcohol consumption among full-time freshmen students. The multi-component intervention consisted of (a) attending an alcohol education orientation session, (b) receiving a normative feedback e-mail, (c) attending a residence hall "maintenance" session, and (d) receiving a "maintenance" e-mail regarding the promotion of alcohol-free events. Changes in outcomes were assessed through pre-project and post-project surveys. After data collection, paired *t* tests were performed to evaluate and determine the significance of the EBP project's results. In conclusion, orientation and residence hall "maintenance" session positively influenced participants' alcohol consumption. Additionally, self-identified drinkers had a significant increase in frequency of alcohol consumption and in levels of confidence and importance related to changing alcohol consumption. Future recommendations and implications are discussed.

Keywords: evidence-based practice, alcohol consumption, brief intervention, freshmen

CHAPTER 1

INTRODUCTION

Background

Alcohol is consumed by many underage individuals (National Institute on Alcoholism and Alcohol Abuse [NIAAA], 2006). As a result of underage drinking 5,000 young people under the age of 21 die annually (NIAAA, 2006). Additionally, excessive alcohol use is a health problem that often is unrecognized in this young adult population. Excessive alcohol use includes both heavy drinking and binge drinking. Heavy drinking is defined as consuming more than an average of two drinks each day for men and consuming an average of more than an average of one drink each day for women (CDC, 2010). Binge drinking is defined as the consumption of five or more drinks in a row for men and four or more drinks for women on one or more occasions during a two-week period (Moreira, Smith, & Foxcroft, 2010; Wechsler & Nelson, 2008). Interestingly enough, most heavy and binge drinkers do not suffer from alcohol dependency, however, consuming alcohol excessively results in several psychological disorders and numerous chronic health problems including liver cirrhosis, pancreatitis, various cancers, hypertension, myocardial infarction, and cerebral vascular accident (Centers for Disease Control and Prevention [CDC], 2010). Claiming 79,000 lives each year, excessive alcohol use is the third leading preventable cause of death in the United States (CDC, 2011a). Additionally, 185 billion dollars is spent annually on health care and legal expenses related to excessive alcohol use (CDC, 2011a).

In addition to the health problems that are posed by underage drinking and excessive alcohol consumption, there are many other negative alcohol-related consequences. Unintentional injuries, including motor vehicle collisions, falls, drowning, burns, and firearm injuries, can result from alcohol use (CDC, 2010). Furthermore, unsafe sexual practices resulting in unplanned pregnancy and acquired sexually transmitted infections can be consequences from alcohol consumption (Wechsler, Davenport, Dowdall, Moeykens,

Castillo,1994). Consequences of excessive alcohol use include physical and sexual assault, theft, property damage, interpersonal relationship issues, physical and cognitive impairment, disruption of sleep and studies, and poor academic performance (Wechsler et al, 2002).

Statement of Problem

Alcohol consumption among college students is a problem at national, state, and local levels, as demonstrated by the volume of information from existing literature. Additionally, it has been demonstrated that there is a need and priority for an intervention to be implemented to reduce alcohol consumption in college students who are enrolled at the project's campus. Given the statistics, need, and priority, an evidence-based practice (EBP) project was implemented addressing the reduction of alcohol use in young adult college students.

Data from the literature supporting the need for the project. *Healthy People 2020* (Centers for Disease Control and Prevention [CDC], 2011b) identifies health objectives for the United States (U.S.) to accomplish during the second decade of the new century. Developed and sponsored by the United States Department of Health and Human Services (USDHHS), *Healthy People 2020* is utilized by states, communities, health professionals, and professional organizations to assist in the development of health programs aimed at improving the health of the nation. *Healthy People 2020* identifies various objectives that target specific lifestyles and health behavior. Objective 14 of *Healthy People 2020* is concerned with reducing the proportion of individuals engaging in binge drinking of alcoholic beverages (CDC, 2011b). More specifically, the goal of Objective 14.2 is to reduce the number of college students partaking in binge drinking of alcoholic beverages in the last two weeks (CDC, 2011b)

There have been several studies conducted regarding the behaviors and habits of U.S. college students (O'Malley & Johnston, 2002). The College Alcohol Study reported measures of alcohol use, drug and tobacco use, and various health habits of 38,982 college students (Wechsler & Nelson, 2008). These authors found that alcohol consumption and binge drinking was a highly prevalent activity in college students. It was discovered that 44 percent of young

adult college students attending a four-year college, drank alcohol at the binge level or greater. (Wechsler & Nelson, 2008). Similarly, the Core Study, which surveyed 28,715 young adults, discovered that the majority of college students have consumed alcohol in the past year and past 30 days, with 67 percent of those consuming alcohol in the past 30 days being underage (Presley, Meilman, & Leichliter, 2002). The Monitoring the Future study, which had an approximate weighted sample size of 1,320 college students, reported measures of alcohol, other drugs, and tobacco use (Johnston, O'Malley, Bachman, & Schulenberg, 2010). From this survey, it was discovered that 82 percent of college students have tried alcohol. Lastly, the National Household Survey on Drug Abuse asked questions regarding the use of alcohol, tobacco, and illicit drugs (Substance Abuse & Mental Health Services [SAMHSA], 2010). Researchers found that among full-time college students, 63.3 percent were current drinkers, 42.2 percent were binge drinkers, and 15.6 percent were heavy drinkers. All surveys demonstrated that there is a problem concerning alcohol consumption in college students.

In addition, several significant national and state statistics have been reported concerning excessive alcohol consumption and binge drinking among young adult college students. Approximately 10.8 million individuals, aged 12-20, reported drinking alcohol in the past month (SAMHSA, 2010). About 90 percent of the alcohol consumed by youth less than 21 years of age is in the form of binge drinks (Office of Juvenile Justice and Delinquency Prevention, 2005). Additionally, the proportion of binge drinkers is highest in the 18-20 year old group at 51 percent (Naimi et al, 2003). Moreover, binge drinkers consumed 91 percent of all the alcohol that college students reported drinking, with 68 percent of the alcohol consumed by frequent binge drinkers (Wechsler & Nelson, 2008). College students aged 18-22 years, who are enrolled in college full-time, were more likely than those enrolled part-time to use alcohol in the past month, binge drink, and drink heavily (Department of Health & Human Services, 2008). With respect to Indiana, college binge drinking rates is estimated approximately at 50 percent (Nelson, Naimi, Brewer, Wechsler, 2005).

The environmental statistics concerning alcohol consumption are related to social influences of college students, as social events and increased levels of socialization are associated with drinking. Those students consuming alcohol believe that college parties are important (Ford, 2007; Reifman & Watson, 2003; & Wechsler, Dowell, Davenport, & Casillo, 1995). Additionally, college students who consume alcohol have more than five friends, spend more than two hours each day socializing, belong to Greek organizations, and have roommates (Ford 2007; Reifman & Watson, 2003; & Wechsler et al, 1995). College students who drink are more likely to have members of their social network who also partake in alcohol consumption, with the social network being those individuals that college students have contact with at school, work, home, or in social settings (Reifman & Watson, 2003).

Although there are a variety of groups to target on college campuses concerning the implementation of an intervention to reduce alcohol consumption, college freshmen is a population of interest. There are several reasons that support the choice for implementing an intervention concerning the prevention or reduction of alcohol consumption in college freshmen. According to Croom and colleagues (2008) freshmen: (a) are particularly vulnerable to the misuse of alcohol after arriving to campus, (b) are tempted to use alcohol because they are away from home and lack parental supervision, (c) desire social acceptance from peers and perceive that consuming alcohol can assist with being accepted, (d) use alcohol to cope, as they exhibit greater anxiety that is linked with unfamiliar social and academic environments, (e) lack knowledge concerning the potential adverse effects of alcohol, and (f) have distorted perceptions regarding peer use and abuse of alcohol.

Data from the clinical agency supporting the need for the project. Indiana Collegiate Action Network ([ICAN], 2010) conducted a survey reporting the use of various substances for Indiana college students, including students attending college on the project's campus. Of 900 students invited to participate in the survey at the project's setting, 290 students responded. The survey respondents consisted of 26.8 percent freshmen, 20.6 percent

sophomores, 21.3 percent juniors, and 31.3 percent seniors. Interestingly, 68.4 percent of respondents reported using alcohol in the previous month as compared to 65.7 percent of Indiana college students consuming alcohol in the previous month. With respect to alcohol use in the previous year, 72.9 percent of Indiana college students consumed alcohol, while 76.1 percent of students on the project campus reported consuming alcoholic beverages. Additionally, it was reported that 40.8 percent of the project's campus students engaged in binge drinking in the previous two weeks, which is four percent higher than the state average. The survey also reported various perceptions of alcohol use on the University campus. It is perceived by 67.1 percent of the respondents that the typical college student consumes four or more alcoholic beverages at the average party. Furthermore, 25.8 percent of the respondents approve of consuming five or more drinks on a daily basis.

ICAN's (2010) survey obtained additional information related to alcohol consumption among students attending college on the project campus. The easiest ways to obtain alcohol by students who are less than 21 years of age and who drank in the previous year are from older friends (62.8%), off-campus private parties (24.5%), and someone else on campus (20.2%). The average age that project's campus students used alcohol for the first time was 17.7 years. Additionally, the top four consequences that were reported by the respondents as a result of drinking were feeling bad about drinking (28.6%), forgetting where they were or what they were doing (23.5%), missing class or assignments (17.1%), or driving while under the influence (16.6%).

Purpose of the EBP Project

Identify the compelling clinical question. The purpose of this EBP project was to reduce alcohol consumption in freshmen college students. The intent was to answer the following compelling clinical question: "In college freshmen, how does a multi-component intervention influence alcohol consumption over a four month period?" The intervention consisted of components to reduce alcohol consumption among freshmen, increase importance

and confidence in changing drinking behavior, and reduce negative consequences that are related to alcohol consumption.

PICOT format. The PICOT format was used to formulate the EBP question. This format involved in the identification of the population of interest (P), the intervention of interest (I), the comparison of interest (C), the outcome of interest (O), and the timeframe in which the intervention will be implemented (T).

P – The targeted population of interest for this EBP project was college freshmen who were at least 18 years of age and enrolled as full-time college students. Freshmen students were targeted based on the aforementioned reasons given by Croom and colleagues (2008). Additionally, it is appropriate to target freshmen, because these individuals start using alcohol before their first year of college, as demonstrated by the ICAN survey (2010) results.

I – A multi-component intervention was implemented for this EBP project. The intervention consisted of providing brief intervention, reminding students of the University's alcohol-free campus policy and consequences for violation of the policy, and promoting alcohol-free events that occur on the project's campus. The various components of the intervention were implemented through e-mails and Twitter messages sent to project participants and "maintenance" sessions held in the University's residence halls.

C – The comparison of interest was a freshmen orientation session, taking place prior to the start of the fall semester. During this session, the Office of Alcohol and Drug Education presents information concerning the consequences of alcohol use.

O – The outcome of interest was a reduction in alcohol consumption in college freshmen who actively consumed alcohol or maintained abstinence in those who are non-drinkers. There were several other secondary outcomes of interest of this EBP project. Increasing importance and confidence to change drinking behavior, as suggested by the Transtheoretical Model of Behavior Change, and reducing alcohol-related consequences were additional outcomes.

T – This EBP project occurred during the fall semester of the 2011academic year, which was approximately four months in duration. This time frame allowed for recruiting participants for the EBP project, gathering baseline data, implementing the multi-component intervention, and assessing the outcomes of the intervention.

Significance of the Project

Alcohol, Tobacco, and Other Drugs (ATOD) Coalition is an entity of the American College Heath Association (2011) that strives to make improvements related to substance use and abuse on college campuses. Additionally, ATOD aims to support individuals committed to enhancing the efforts of the identification of alcohol and other drug use as a leading health and safety issue on college campuses. With respect to the goals of ATOD, it is important to decrease negative consequences associated with alcohol, tobacco, and other drug use.

In support of ATOD's purpose and goals, the project's campus is alcohol-free. Regarding the project's campus alcohol use policy, it is prohibited to use or possess alcoholic beverages on the project's campus (Valparaiso University, 2011c). Additionally, those who choose to use or abuse alcoholic beverages are held responsible for their actions and incur consequences for violation of the campus alcohol policy and other applicable laws related to alcohol use or possession. Students in violation of the alcohol policy may receive counseling, diagnostic, and assessment services from the Office of Alcohol and Drug Education (OADE), an entity of the project's campus counseling services. Wechsler, Lee, Gledhill-Hoyt, and Nelson (2001) demonstrated that college campuses enforcing alcohol control policies resulted in students engaging in drinking and binge drinking less frequently. These authors alcohol found that where alcohol was banned, students were less likely to binge drink and more likely to abstain from alcohol consumption.

The implementation of a multi-component intervention to reduce alcohol consumption in college freshmen was the proposed aim of this EBP project. By reducing alcohol consumption among college freshmen, it was anticipated that this population would be assisted in developing

healthy patterns of living. Naimi and colleagues (2003) found that students who decreased alcohol consumption experienced fewer acute health problems. Additionally, through changing alcohol consumption behavior college students' health would be promoted and disease prevented. This EBP project could also assist college students to make better health decisions regarding alcohol consumption to ultimately enhance the quality and quantity of life. Enhanced academic performance, safety, and confidence were other anticipated benefits gained by students participating in this EBP project.

Nondrinking college students could also benefit from reduced alcohol consumption among other college students, since nondrinkers will suffer less from the secondary effects of alcohol including, interrupted study and sleep, having to take care of an intoxicated student, or being insulted or humiliated by an intoxicated student (Trockel, Wall, Williams, & Reis, 2008).

Reducing the level of alcohol consumption also benefits the project campus community by minimizing negative consequences thus improving campus safety, maintaining student enrollment, boosting overall academic performance, and reducing college drop-out rates. In addition, researchers have found when college students reduce their alcohol consumption there is a decrease in negative, alcohol-related consequences including fewer episodes of violence and sexual assault (Nelson, Toomey, Lenk, Ericksen, & Winters, 2010; Wechsler et al, 2002) Due to the prevalence of negative alcohol-related consequences experienced among college students, effective prevention strategies must be implemented to change the drinking behavior of this population (NIAAA, 2002).

In addition to college students and the University campus community benefitting, results from this EBP project supplemented the knowledge regarding current practice with respect to interventions aimed at reducing alcohol consumption in college students. The success of this EBP project also provides support for the previous research that has been generated regarding alcohol use. Additionally, findings from this EBP project provided information and support to

academic institutions that have goals to implement interventions to prevent or reduce alcohol consumption on their respective campuses.

CHAPTER 2

THEORETICAL FRAMEWORKS AND REVIEW OF LITERATURE

Theoretical Frameworks for EBP Project

The use of theoretical frameworks or models helps guide an EBP project. The Transtheoretical Model of Health Behavior Change ([TTM], Prochaska & DiClemente, 1983) and Diffusion of Innovations (Rogers, 1962) Model (DoI) were selected as the frameworks to assist with guidance of this EBP project.

Transtheoretical Model

TTM utilizes various stage of change to incorporate processes and principles of change involving major theories of intervention (Prochaska & DiClemente, 1986). TTM has been used in conjunction with many health behaviors including smoking cessation; anxiety and panic disorders; bullying; delinquency; depression; eating disorders and obesity; high-fat diets; mammography and cancer screening; medication adherence; unplanned pregnancy prevention; sedentary lifestyles; sun exposure; and alcohol and substance abuse (Prochaska, 1994). Clinicians practicing in the primary care setting have used TTM to address other health behaviors in addition to the aforementioned behaviors. Because reducing alcohol use requires changing an individual's behavior, TTM was chosen as a framework to assist in guidance of the EBP project.

Overview of Transtheoretical Model. The constructs of TTM includes six stages of change, processes of change, decisional balance, self-efficacy, and temptation. The stages of change involve pre-contemplation, contemplation, preparation, action, maintenance, and termination (Prochaska & DiClemente, 1983). In the pre-contemplation stage, an individual is unaware of the hazards or risks association with a behavior (Prochaska & DiClemente, 1983). A person in pre-contemplation lacks the desire to make changes with respect to a given behavior. Those who are in the pre-contemplation stage have no intention to change usually within the next six months. Contemplation is the stage where a person realizes the existence of some

risks or problems with a given behavior (Prochaska & DiClemente, 1983). With this stage, an individual considers making a behavior modification, but is not committed to change and has ambivalence toward making a behavioral change. A contemplative person has the intention to act towards changing typically within six months. The next stage, preparation, involves the resolution or reduction in ambivalence (Prochaska & DiClemente, 1983). In this stage, an individual has made some modifications in behavior, with intention to take serious action, which typically occurs in the next thirty days. In the action stage, a person alters his or her behavior and possibly the environment (Prochaska & DiClemente, 1983). Behavioral changes that have been made in the action stage take place for usually less than six months. A person making efforts to support and sustain the change that has been made characterizes the maintenance stage (Prochaska & DiClemente, 1983). Attributes of this stage include gain consolidation, behavior change stabilization, and relapse prevention. An individual in the maintenance stage has changed his or her behavior for more than six months. The termination stage is described as complete sustainment of the change behavior (Prochaska & DiClemente, 1983). A person in the termination stage has no temptation to engage in the formal behavior that he or she displayed and has confidence to avoid returning to the unhealthy behavior.

According to Prochaska and DiClemente (1986), various processes of change mediate progression between each stage of change. To progress from precontemplation to contemplation, an individual must engage in the change processes of consciousness raising, dramatic relief, and environmental reevaluation. Consciousness raising involves the discovery and learning of new facts and ideas that reinforce the healthy behavior change. Dramatic relief refers to the negative emotions experienced by a person in association with the unhealthy behavior. Environmental reevaluation involves the negative influence of the unhealthy behavior or the positive influence of the healthy behavior in an individual's surroundings. Self-reevaluation mediates the progression from contemplation to preparation. Self-reevaluation occurs when the individual realizes that the behavior change is relevant to his or her identity.

Progressing from the preparation stage to the action stage involves self-liberation. Self-liberation is committing to change. Finally, the change processes of helping relationships, counterconditioning, reinforcement management, and stimulus control mediate the progression from the action stage to maintenance stage. (Prochaska & DiClemente, 1986; Prochaska & Velicer, 1997). Helping relationships is when an individual finds and employs social support to make the behavior change. Counterconditioning is substituting healthier behaviors and thoughts for the unhealthy behavior. Reinforcement management refers to enhancing the rewards for the healthy change and reducing the rewards for the unhealthy behavior. Stimulus control involves the removal of cues to partake in the unhealthy behavior and incorporation of reminders to partake in the healthy behavior.

The construct of decisional balance involves pros and cons in relation to the behavior change. The pros simply refer to the advantages or benefits of changing whereas the cons are the disadvantages or risks of changing (Prochaska & DiClemente, 1986; Prochaska & Velicer, 1997). Depending on the stage of change that the individual resides, the balance between the pros and cons will differ. Persons who are in the precontemplation stage will appreciate the pros of the unhealthy behavior to outweigh the cons (Prochaska, 1994; Prochaska et al, 1994). However, with respect to individuals who are in the maintenance stage, the cons of the unhealthy behavior will outweigh the pros.

The constructs of self-efficacy and temptation are usually discussed together. Self-efficacy is essentially the confidence that an individual possesses and uses to participate in the healthy behaviors, even in difficult situations (Prochaska & Velicer, 1997). With self-efficacy, the individual prevents relapsing to his or her former behaviors. On the other hand, temptation is the invitation to partake in the unhealthy behavior in challenging circumstances. Emotional distress, positive social situations, and craving are the most common categories of temptation.

Application of Transtheoretical Model. Investigators have used the TTM to guide research with respect to changing behavior regarding alcohol consumption. Dimeff, Baer,

Kivlahan, and Marlatt (1999) used the TTM to develop an alcohol screening technique and interventions used to treat alcohol abuse. DImeff and colleagues (1999) found that college students could be at various stages of TTM in relation to alcohol consumption. With respect to the pre-contemplation stage, college students who drink may believe that they are not engaging in an unhealthy behavior and failed to view their drinking as a behavior that needs modification (Dimeff, Baer, Kivlahan, & Marlatt, 1999). College students who consume alcohol that are in the contemplation stage recognize the maladaptive aspects of alcohol use and vacillate between changing and resisting change (Dimeff et at, 1999). In the contemplation stage, college students who consume alcohol may struggle with their positive alcohol-related experiences and the amount of effort, energy, and loss it will take to overcome the behavior. In the preparation stage, college students who engage in alcohol consumption may reduce the number of drinks consumed, but usually fail to abstain from intoxication or abuse of alcohol (Dimeff et at, 1999). Concerning the action stage, drinking college students may completely forego consuming alcoholic beverages and accept fewer invitations to attend events (e.g. college parties, Greek events, etc.) where alcohol consumption is accepted and encouraged (Dimeff et at, 1999). In the maintenance stage, efforts are taken by college student drinkers to heighten the sustainability of the change to reduce or abstain from alcohol use (Dimeff et at, 1999). In this stage, college students may completely abstain from alcohol consumption and decline to attend events associated with using alcohol. Concerning the termination phase, college student drinkers have obliterated the temptation to consume alcohol and are confident that they will forego opportunities to engage in this unhealthy behavior (Dimeff et at, 1999).

Several research studies have been conducted where readiness to change was measured in addition to alcohol consumption (LaBrie, Lamb, Pendersen, & Quinlan, 2006; LaBrie, Pendersen, Lamb, & Quinlan, 2007a; Henslee & Correia, 2009). Increases in the readiness to change are precursors to behavior changes and have been observed in response to incidents involving alcohol in adolescents and college students (Wood, Capone, Laforge,

Erickson, & Brand, 2007). Motivating individuals to change problematic behavior, including alcohol abuse, is posited by TTM, where each successive stage represents increased motivation for continued behavior change (LaBrie et al, 2006). Furthermore, research has suggested that motivation serves as a critical component in the outcomes resulting from the treatment of problematic behaviors (Foote et al, 1999).

Strengths and limitations. There are several strengths of the TTM for this EBP project. First, since reducing alcohol consumption requires changing a behavior or changing to eliminate an unhealthy behavior, the TTM is an excellent framework to help explain this change process. Second, by using the TTM, the participating students could be categorized according to their level of readiness to change drinking behavior. Thus, the TTM assisted in describing which stage the students are at in relation to the quantity and frequency of alcohol consumption. Lastly, the TTM also helped evaluate the intervention and the outcomes of the EBP project.

There are several weaknesses of the TTM in relation to this project. TTM lacked guidance for implementing the EBP process, which generally includes defining the clinical problem, searching for the best literature, implementing interventions, and evaluating outcomes. Additionally, TTM failed to address environmental influences, including setting, peers, and social pressures, that can affect the change process. These environmental factors, in addition to others, must be taken into consideration when implementing an intervention in the EBP process. Another limitation of TTM was that it assumed movement progresses in a unidirectional fashion, from pre-contemplation to contemplation to action and so on. TTM failed to account for wavering between various stages, which is typical of an individual attempting to change his or her behavior.

Diffusion of Innovations Model (DoI)

DoI focuses on the ways that new technological advancements or techniques are adopted over time. Through communication networks, it is proposed that members of a social system are responsible for adopting technological innovations (Rogers, 1962).

Overview of Diffusion of Innovations. The four interacting factors of the DoI include innovation, communication, social systems, and time (Rogers, 2004; Haider & Kreps, 2004). According to Rogers (1962), an innovation is an idea or practice, which is viewed by an individual or organization as novel. Diffusion is a process involving communication and dissemination of the innovation to a social system or organization. The process of diffusion is time-dependent and focuses on social change, resulting from the adoption or rejection of a new idea or practice. The innovators, early adopters, and early majority accept the innovation quickly. In contrast, the late majority and laggards are more resistant to change and slowly adopt the innovation (Rogers, 2004). A critical mass, composed of 15 to 20 percent of innovators, early adopters, and early majority, is needed before the beginning of the adoption of the innovation can occur. Rogers (2004) suggests several strategies to attaining a critical mass including (a) adoption of the innovation by highly respected individuals belonging to the social system, (b) the creation of a desire for a specific innovation, (c) the initiation of diffusion by finding individuals who would readily engage in innovation utilization, and (d) the provision of incentives for early adopters.

The DoI consists of five stages, which include knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). In the knowledge stage, an individual has his or her first exposure to an innovation, but lacks information about the innovation (Rogers, 2003). During this stage of the process, a person has greater understanding with respect to the functions of the innovation. The persuasion stage is characterized by an individual becoming interested in the innovation and actively seeking additional details concerning the innovation (Rogers, 2003). Furthermore, in the persuasion stage, a person develops a more favorable attitude to the innovation. In the decision stage, an individual considers the advantages and disadvantages of using the innovation (Rogers, 2003). It is in the decision stage that an individual decides whether to adopt or reject the innovation. If the advantages outweigh the disadvantages, then a person would be more inclined to adopt the innovation. The next stage,

implementation, involves putting the innovation to use (Rogers, 2003). With this, an individual employs the innovation to a varying degree with regard to a situation. An individual finalizing his or her decision to continue using the innovation describes the confirmation stage (Rogers, 2003). This stage is reinforced with the positive outcomes that have resulted from implementation of the innovation. Thus, the consequences resulting from the innovation can be varied depending on the level of desirability or expectedness (Haider & Kreps, 2004).

According to Rogers (1962, 2003), there are several important characteristics of an innovation, including relative advantage, compatibility, complexity, trialability, and observability. Relative advantage involves the extent to which the innovation is perceived to be better as compared to practice that the innovation may supersede. Compatibility deals with the consistency of existing values, past experiences, and needs of the individuals in the setting where the innovation could be implemented. Complexity involves the difficulty or ease of understanding and using the innovation. Trialability includes the degree to which the innovation can undergo experimentation on a time-limited basis, while observability is simply being able to view the results of the innovation.

Application of Diffusion of Innovations. DoI was used to guide this EBP project. With respect of the knowledge stage, the literature was searched by the project leader for interventions or innovations to help reduce the proportion of college students engaging in alcohol consumption. The project leader became aware of many interventions or strategies to assist in the goal of reducing alcohol consumption among college students. The interventions discovered in the literature searches included brief intervention and environmental strategies. Additionally, the literature provided the project leader with information about how to implement these interventions correctly. Descriptions of how and why these interventions are effective in reducing the proportion of college students engaging in alcohol consumption were also provided in the literature. With respect to the organization, this knowledge was shared with key stakeholders of the University who were identified as early adopters including the Counseling

Services, Student Health Center, Residential Life, and Core 5th Hour faculty. Staff from the project campus Counseling Services agreed with the project leader that there is a desire to reduce alcohol consumption in college students and supported the plan student to implement interventions or strategies discovered in the literature search. Additionally, the Counseling Services and Student Health Center personnel realized that the University needs prevention efforts, rather than reactive strategies, for addressing alcohol consumption among its students. Residential Life staff recommended that an intervention, occurring before Homecoming, Fall Break, and mid-term examinations is needed. These events were identified, since they mark increased periods of stress in the lives of college freshmen, where they may turn to alcohol use to cope. Additionally, the support of Resident Advisors (RAs) and Resident Leader Consultants (RLCs) was gained concerning implementing an intervention in campus residence halls. Lastly, Core 5th Hour faculty agreed with the need and timing of intervention and offered credit for Core class, a mandated course for all freshmen.

During the persuasion stage, the project leader assisted college freshmen and University staff to develop a favorable attitude toward the innovation. To accomplish this, the project leader provided information to freshmen and University staff regarding the various interventions by conducting additional literature searches to find the best evidence. Relative advantage, compatibility, complexity, trialability, and observability were considered by the project leader when persuading college freshmen and University to develop a favorable attitude toward the innovation. Concerning relative advantage, it was hoped that brief intervention and environmental strategies would replace or add to what has been formally used to reduce alcohol consumption in college students on the project campus. As previously discussed, based on the assessment of the organization where the EBP project was conducted, it was found that university personnel accepted the innovation, which could result sustainability of the intervention within the organization. Furthermore, with the innovation being consistent with values, past experiences, and needs of University staff and students, the intervention would have a high

degree of compatibility. Based on the information gained from the literature, it appeared that the interventions are comprehended, feasible, and sustainable, which decreased the innovation's complexity. Since the intervention could be used on a limited basis of time, the trialability of the innovation was increased. This project was conducted during the fall semester of 2011 on the project's campus. The extent of observability of brief intervention was high, because the proposed outcomes, including the reduction of the proportion of college students engaging in consuming alcohol and the decrease in negative alcohol-related consequences experienced by students, was measured. Thus, because of the high degree of relative advantage, compatibility, trialability, and observability and the low degree of complexity of the innovation, it was hoped that the target population and University staff would be persuaded to implement a brief intervention and environmental strategies to reduce alcohol consumption.

In regard to the decision stage of DoI, since the project leader gained support and acceptance by the University personnel for the interventions to be implemented, it was hoped that adoption of the innovation would take place. The aforementioned organizational personnel consisted of the innovators and early adopters that make up the critical mass to adopt the innovation. Concerning the implementation stage, further communication and collaboration took place with organizational personnel to develop a strategy that was feasible and sustainable in the university setting. It was decided that freshmen orientation and residence halls served as outlets for implementing the intervention during the implementation stage.

During the confirmation stage, the results of the innovation were evaluated. Thus, with respect to the student's EBP project, the implementation of brief intervention and environmental strategies were evaluated concerning decreased levels of alcohol consumption. Additionally, other improvements could result from reduced alcohol use. For instance, students could experience decreased negative alcohol-related consequences, including few episodes of violence, sexual assault, and theft and improved/maintained academic performance. Nondrinking college students could also benefit from reduced alcohol consumption among other

college students, since nondrinkers would suffer less from the secondary effects of alcohol including, interrupted study and sleep, having to take care of an intoxicated student, or being insulted or humiliated by an intoxicated student. Because of minimized consequences, the organization could improve campus safety, maintain student enrollment, and reduce college drop-out rates. Decreased alcohol consumption among freshmen could also lead to increased motivation to change and corrected misperceptions concerning student alcohol consumption. With this, the innovation would be reinforced by the positive consequences resulting from it at student and organizational levels, which would also contribute to sustainability of the intervention.

Literature Search

In the search for best evidence for this EBP project, several search engines, key words, and inclusion and exclusion criteria were used. It must be noted that occasionally the same article was retrieved when separate searches were conducted on different databases. Additionally, some articles were hand-searched, using citation chasing. Table 2.1 depicts the selected articles based on the key words, inclusion criteria, and exclusion criteria used.

Search Engines and Keywords

MEDLINE, CINAHL, Proquest Nursing and Allied Health Source, PsycINFO, Cochrane Library, and Joanna Briggs Institute were used as search engines to reveal articles associated with college or university students and alcohol consumption. Key words that were used when conducting searching include “alcohol use”, “college students”, and “intervention”. Database headings and thesauruses were used to select the appropriate key words to be employed when conducting searches on each database. These key words were used in different combinations when conducting searches.

Inclusion and Exclusion Criteria

The inclusion criteria employed when selecting articles were those that: (a) used undergraduate, U. S. college or university students for the population of interest; (b) were

written in English; (c) implemented the intervention in a group setting; (d) peer-reviewed; and (e) were generated after year 2000. The exclusion criteria used when selecting articles were those that: (a) targeted specific college social groups (e.g. fraternities or sororities); (b) were inpatient, outpatient-, or medication-based interventions; or (c) were not easily replicated in a collegiate setting.

Table 2.1

Literature Search Results

Key words	*CINAHL*	*Cochrane Database*	*JBI*	*Medline*	*Proquest*	*PsycINFO*	*Hand Search*
-Alcohol abuse	2509	83	2	14233	2661	495	
-College students	266	4	0	610	228	99	
-Intervention	34	0	0	113	26	5	3
Inclusion criteria: Targeted college students, written in English, group setting intervention implementation, published after 2000, peer reviewed Exclusion criteria: Inpatient-, outpatient-, or medication-based interventions; specific collegiate social group targeted; non-replicable	3	1	0	0	1	5	3
Total:	3	1	0	0	1	5	3

Review of Literature

Many interventions have been investigated to determine their effectiveness in reducing alcohol consumption in college students. Interventions, for male and female college students, have included brief intervention consisting of Time Line Follow-Back (TLFB) assessment, alcohol expectancies, normative feedback, blood alcohol content (BAC) information, decisional balance, reasons for drinking, and personal goal setting. Other interventions aim to change the environments of college students, including making students aware and enforcing campus alcohol policies and promoting substance-free events. Table 2.2 depicts studies included in the review of the literature for this EBP project.

Prevention and Alcohol Use Reduction Strategies Developed By National Bodies

The Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism (NACAAA) developed a strategy to help change the culture of college campuses in order to reduce alcohol consumption (NIAAA, 2002). According to NACAAA (NIAAA, 2002), the tradition of alcohol consumption in college students has developed into a culture, where students have adopted certain beliefs and customs associated with alcohol consumption. These beliefs and customs reinforce the expectation of students that alcohol is required for social success, thus influencing student drinking behaviors. The strategy devised by the NACAAA Task Force consists of four tiers of evidence. Tier 1 represents the evidence of effectiveness among college students that target individual problem, at-risk, or alcohol-dependent drinkers. Specific strategies included in this tier are using cognitive-behavioral skills in combination with norms clarification and motivational enhancement interventions, implementing brief motivational enhancement interventions, and challenging alcohol expectancies. Tier 2 involves strategies that have evidence of success with general populations applicable to college environments. Examples of interventions are increased enforcement of legal drinking age and driving under the influence laws, as well as, increasing the price and excise taxes on alcoholic beverages. Tier 3 represents the evidence of logical and theoretical promise, but requires evaluation that is more

comprehensive. Strategies specific to Tier 3 include adopting campus policies than seem capable of reducing high-risk alcohol use and informing new students about alcohol policies and penalties before arrival to campus and during orientation. Lastly, Tier 4 involves strategies that demonstrate evidence of ineffectiveness. The implementation of informational, knowledge-based or values clarification interventions concerning alcohol and its negative consequences by itself is an example of such a strategy.

The USDHHS (2007) developed recommendations regarding the prevention and reduction of underage drinking. The goals of such interventions to prevent or reduce underage drinking include, (a) changing the social acceptance, norms, and expectations surrounding underage drinking, (b) preventing adolescents from starting to drink, (c) delaying the initiation of drinking, (d) intervening early, and (e) decreasing drinking and its negative consequences. USDHHS (2007) advises that interventions to prevent or reduce alcohol consumption must be aimed at changing the adolescent or changing the adolescent's environment. According to USDHHS (2007), changing adolescent behavior requires (a) modifying expectations, attitudes, and intentions, (b) teaching knowledge and skills about alcohol consumption, and (c) increasing motivation to resist alcohol consumption. In order to change the environment, opportunities for underage drinking can be reduced by increasing the enforcement of laws and penalties regarding alcohol consumption.

The National Prevention Council (2011) developed a plan for better health and wellness targeting U. S. citizens. This plan has seven priorities including drug abuse and excessive alcohol use prevention. Applicable to college students, excessive alcohol use can involve binge drinking and underage drinking. Based on this priority, there were several recommendations. The Council advises that support should be offered to the implementation and enforcement of policies that control alcohol. These policies can target laws addressing driving while intoxicated and minimum legal drinking age. Another recommendation is to create environments that empower youth to avoid alcohol consumption. With this, young adults will be influenced to make

better decisions regarding social activities. Furthermore, the Council advises to identify alcohol abuse and provide brief intervention and treatment. Early detection and treatment of alcohol disorders are keys to promote health.

Implementing Multi-component, Group, Brief Intervention

Moreira and colleagues (2010) conducted a systematic review to determine whether social norms feedback, a specific component of brief intervention, reduces alcohol consumption in university or college students. Twenty-six experimental, randomized controlled trials, yielding 7,275 subjects, were selected for the review. Of the studies included in the review, all compared a normative intervention with a non-intervention control group or other non-normative feedback intervention. A standardized mean difference (SMD) was used to measure the treatment effect. The authors found that web-based and individual face-to-face feedback are probably the most effective in minimizing alcohol misuse. Web-based feedback may be preferred because it is more cost-effective and can influence many outcomes. Mailed and group feedback, as well as, social norms campaigns was effective in reducing alcohol consumption, however, studies using these interventions yielded insignificant results. Additionally, brief intervention was more successful in achieving short-term outcomes rather than long-term outcomes.

A meta-analysis, conducted by Vasilaki, Hosier, and Cox (2006), examined whether brief intervention is more efficacious than no intervention in reducing alcohol consumption in young adult college students. This analysis also investigated whether brief intervention is as successful as other interventions. Fifteen experimental, randomized controlled trials, yielding 2,767 subjects, were selected for the review. The between-groups effect size and confidence intervals in each study were calculated using Coe's Effect Size Calculator, with the formula used for these calculations derived from Cohen's *d*. It was discovered that implementing brief intervention is an effective intervention for minimizing alcohol consumption. A number of studies included in the analysis involved college students, averaging 18 years of age, who had favorable outcomes after receiving brief intervention.

Several studies were conducted to investigate whether brief intervention was efficacious in reducing alcohol consumption in college students and adjudicated college students (LaBrie, Cail, Pedersen, & Magliuri, 2011; LaBrie, Thompson, Huchting, Lac, Buckley, 2007b; LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2009; LaBrie et al, 2008) . The designs of the studies were either experimental or quasi-experimental. All of these studies recruited subjects to participant through convenience sampling. The intervention consisted of various components of brief intervention including TLFB assessment, normative feedback, decisional balance, relapse prevention, expectancy challenge information, behavioral goal setting, blood alcohol content information, and social norms re-education. The intervention was delivered using a group format, with groups averaging 10 to 15 subjects in size. Depending on the particular study, either one or two sessions took place and lasted between 60 to 90 minutes. Outcomes that were measured in these studies included alcohol consumption, readiness to change, and negative alcohol-related experiences. These outcomes were measured by weekly or monthly drinking self-reports, use Readiness to Change (RTC) Rulers, and Rutger's Alcohol Problem Index (RAPI), respectively. In general, the investigators of these studies concluded that with the implementation of brief intervention, subjects consumed less alcohol and experienced fewer negative alcohol-related consequences. It was also concluded that those subjects who were classified as binge drinkers exhibited increased readiness to change as compared to non-binge drinkers.

Targeting College Students with A Specific, Group, Brief MI Intervention: Normative Feedback

Henslee and Correia (2009) conducted an experimental, two group pretest/posttest study to determine the effectiveness of delivering personalized normative feedback to first-semester college freshmen in a group lecture format. Subjects (*N* = 216) recruited from freshmen seminar programs participated in the 5-week study. All subjects were assessed before and after the intervention using the Daily Drinking Questionnaire (DDQ), Alcohol Use Disorders

Identification Test (AUDIT), perceived peer use survey, RAPI, and RTC questionnaire. The size of the intervention groups was large, using a lecture-format to deliver personalized normative feedback sessions that lasted 50 minutes. Control groups only received alcohol education. The results of the study demonstrated that personalized feedback failed to result in reductions in alcohol use or negative alcohol-related consequences. However, there were differences in those completing pre-test only and those completing the post-test, which could account for the results. Additionally, participants in the intervention group reported more accurate perceptions of the quantity of peer use at follow-up and were more ready to change than control participants.

Reilly and Wood (2008) conducted an experimental, two group pretest/posttest study to establish the effectiveness of delivering personalized normative feedback to first-semester college freshmen in an interactive small-group format. Subjects recruited from freshmen orientation courses participated in the 5-week study (*N* = 509). All subjects were assessed before and after the intervention using the items created by the researchers to assess alcohol use and the Drinking Norms Rating Form that measured perceptions. Intervention groups, consisting of less than 35 students, received interactive small-group social norms correction (ISNC) presentations that lasted 50 minutes. Control groups received the standard social norms correction (SSNC) presentation. The results of the study demonstrated that subjects receiving ISNC failed to reduce alcohol consumption. However, subjects in ISNC group corrected misperceptions of alcohol use with respect to college students.

Turner, Perkins, and Bauerle (2008) conducted a quasi-experimental, post-test only, cohort study to examine whether alcohol-related consequences and alcohol consumption decreased among college students exposed to a social norms marketing campaign over a period of six years. The normative feedback intervention used posters displayed in dormitories, newspaper advertisements, music events, parent orientation, and small group sessions. Subjects who completed the post-intervention assessment were selected by random sampling, where race and class year were stratified. Measurements included the number of drinks

consumed during a drinking episode, possible negative outcomes experienced, and recall of exposure to intervention. It was discovered that there was a significant decrease in the odds of students experiencing serious consequences associated with alcohol use. Additionally, first-year students who were exposed to the campaign had lower estimated blood alcohol content, reduced alcohol consumption, and fewer negative alcohol-related consequences.

Substance-free Events

Correia, Carey, Simons, and Bosari (2003) conducted a descriptive, non-experimental study to identify patterns of depriving individuals of substance-free reinforcement in relation to binge drinking. A convenience sample of 246 subjects from a private university participated in this study. All subjects completed surveys measuring drug and alcohol use, RAPI, and Pleasure Events Schedule (PES). Although the study's design was non-experimental, those who were not classified as binge drinkers served as a comparison group. The results of the survey demonstrated that binge drinkers showed a relationship with the frequency of nonsocial, introverted, and passive outdoor activities. The researchers discovered that binge drinkers obtain less reinforcement from certain types of substance-free activities as compared to non-binge drinkers. Additionally, the existence of substance-free reinforcement deficits has implications for prevention efforts.

Correia, Benson, and Carey (2005) conducted an experimental study to test the relationship between substance-use and substance-free behaviors in a natural environment. A convenience sample of 133 subjects recruited from psychology courses at a private university participated in this study. Subjects were assigned to one of three groups: substance reduction, activity increase, or control. Subjects participating in the substance reduction group were instructed to reduce the frequency of their substance use by 50 percent during the next 28 days. Subjects assigned to the activity increase group were instructed to increase by 50 percent the number of days that they engaged in both exercise and creative activity. The study lasted four weeks in duration. All subjects were assessed before and after the intervention using the DDQ

and other versions of the DDQ to assess the use of other substances. Behaviors in substance use were measured post-intervention utilizing the Behavior Rating Form. Subjects who participated in the substance reduction strategy demonstrated fewer substance-use days and fewer alcohol-use days. Subjects increasing their activity reported a reduction in the frequency of substance-use days and in the total quantity of alcohol consumed. In conclusion, reductions in substance-use can be attained by increasing engagement in substance-free activities.

Table 2.2

Review of Literature – Reviews and Single Studies

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
Moreira et al., 2010	To determine whether social norms feedback reduces alcohol misuse in university or college students.	26 studies; *N* = 7275 subjects	Systematic review using randomized control trials (RCTs).	IV: brief intervention DV: Alcohol use	Although less convincing than MI interventions delivered in individual formats, group sessions showed reductions in the quantity of drinking and binge drinking in college/university students on a short-term basis.
Vasilaki, et al., 2006	To examine whether motivational interviewing is more efficacious than no intervention in reducing alcohol consumption and to examine whether brief intervention is as successful as other interventions.	15 studies; *N* = 2767 subjects	Meta-analysis using RCTs	IV: brief intervention DV: Alcohol use (some studies also examined the subjects' readiness to change)	Brief intervention is an effective for reducing alcohol consumption. A number of studies included in the review involved college students, with an average to 18 years, who had favorable outcomes after receiving brief intervention.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
LaBrie et al, 2007a	To investigate a group, brief intervention to reduce problematic drinking and alcohol-related results experienced among freshmen male college students.	*N* = 120 freshmen male college students Type of sample: Convenience Recruitment: Flyers were distributed on campus. Setting: private university Inclusion criteria: enrolled freshmen males	Design: Quasi-experimental Length of follow-up: Study lasted 3 months. Attrition: 25% Group Makeup: 10 to15 individuals. Intervention Duration: 60 to 90 minutes. Theoretical Framework: None Definitions: *Non-drinker* = consumed 0 drinks over 3 months *Non-binge drinker* = never consumed > 5 drinks during episode in 2 weeks *Binge drinker* = drank > 5 drinks during episode but < 3 episodes in 2 weeks *Frequent binge drinker*= drank < 5 drinks during ≥ 3 episodes in 2 weeks	**I**V: Multi-component brief MI intervention: TLFB, normative feedback, decisional balance, relapse prevention, expectancy challenge information, and behavioral goals. DV_1: Alcohol use: pre-intervention – TLFB; post-intervention - monthly drinking logs (completed each month for three months following intervention) DV_2: Consequences : pre- and post-intervention – RAPI DV_3: Readiness to change: pre-and post-intervention – Change Drinking Ruler	At 1 month: Total drinks, drinking days, average drinks, and maximum drinks were significantly reduced among subjects. At completion: The four drinking variables were significantly reduced among subjects. There was no main effect across time for RTC, but a significant time x group interaction for RTC. Conclusion: All subjects drank less following the intervention. Those that were most likely to experience potential problems appeared to benefit the most.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
LaBrie et al., 2008	To examine alcohol use among female college freshmen based on the use of a group, brief intervention.	*N* = 220 female incoming college students Type of sample: Convenience Recruitment: Mailed letters and online participation letters Setting: private university Inclusion criteria: enrolled female freshmen	Design: Experimental Length of follow-up: 10 weeks Attrition: 0% intervention; 2% control Group makeup: 8 to12 individuals Intervention duration: Two hours Theoretical framework: None Definitions: *Non-drinker* = drank 0 drinks over 3 months *Non-binge drinker* = never consumed > 5 drinks during episode in 2 weeks *Binge drinker* = drank > 5 drinks during episode but < 3 episodes in 2 weeks *Frequent binge drinker*= drank < 5 drinks during ≥ 3 episodes in 2 weeks	IV: TLFB, self-confrontation with personal drinking alcohol expectancies, "good" and "bad" of drinking, normative feedback, BAC information, reasons for drinking, decisional balance, setting personal goals Control: TLFB and women-specific alcohol education DV_1: Alcohol use: pre-intervention – TLFB; post-intervention - drinking diaries DV_2 : Consequences – RAPI	Alcohol consumption: Those receiving intervention drank significantly fewer drinks/week and had fewer binge drinking episodes. The maximum number of drinks consumed/episode approached significance. Alcohol-related consequences: Those receiving intervention had fewer negative alcohol-related consequences. Conclusion: Subjects receiving the intervention drank fewer drinks per week, had fewer binge drinking episodes per month, and reported fewer alcohol consequences than assessment-only control participants.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
LaBrie et al., 2009	To test a group brief, intervention with women during their first semester in college in relation to alcohol use to validate Labrie et al, 2008 study. The extended efficacy of the intervention at 6 months was examined, as well.	*N* = 285 first-year female students. Type of sample: Convenience Recruitment: Mailed and online participation letters Setting: private university Inclusion criteria: enrolled female freshmen	Design: Experimental Length of follow-up: 10 weeks. Attrition: 8% control, 13% intervention Group makeup: 8-12 individuals Intervention duration: Two hours Theoretical framework: None Definitions: *Heavy drinker* = number of occasions in the past month in which ≥ 4 drinks consumed	IV: TLFB, group discussion on alcohol expectancies, normative feedback, BAC information presentation, reasons for drinking, decisional balance, behavioral goal setting Control: TLFB and women-specific alcohol education DV: Alcohol use: pre-intervention – TLFB; post-intervention - drinking diaries, 6-month follow-up drinking diary	Weeks 1-10: Over time, there was a main effect that showed reductions in drinks/week, maximum number of drinks, and heavy episodic drinking. 6-month follow-up: Although not statistically significant, there were reductions in all alcohol use variables in the experimental group. Conclusion: The group, brief intervention was efficacious in producing less risky drinking among first-year college women during their first semester in school. The effects of the intervention dissipated by the end of second semester.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
LaBrie et al., 2006	To examine the effectiveness of a single, group, brief intervention with college students adjudicated for violation of alcohol policy.	*N* = 167 subjects (freshmen majority) Type of sample: Convenience Recruitment: Judicial Affairs Office referral Setting: private university Inclusion criteria: offenders of campus alcohol policies	Design: Quasi-experimental Length of follow-up: One academic year Attrition: 19% Group makeup: 10 to 15 individuals. Intervention duration: 60 to 90 minutes. Theoretical framework: None Definitions: *Binge drinking* = consuming ≥ 5 drinks in males and ≥ 4 drinks in females in 2 hours *Non-binge drinker* = no binge drinking in last 2 weeks *Binge drinker* = binge drank 1-2 times in last 2 weeks *Frequent binge drinker*= binge drank ≥ 3 times in last 2 weeks	IV: TLFB, normative feedback, decisional balance, relapse prevention, alcohol expectancies, goal setting DV_1: Alcohol use: Pre – survey frequency, quantity, and maximum number of drinks drank within prior month and intended drinking behaviors; Post – monthly drinking diaries recording daily setting, time, and number of drinks consumed DV_2: Consequences: pre- & post – RAPI DV_3: Change: pre - RTC Ruler, beliefs about alcohol effects, motivation to change drinking behavior survey; post-intended drinking behavior, RTC ruler	Drinking behavior: There were significant reductions in drinking behavior across time at one-month and 3-month follow-up for drinks/month, drinking days, average drinks, and maximum drinks for all subjects. Frequent binge drinkers experienced significantly greater reductions in all drinking variables as compared to non-binge and binge drinkers. Drinking consequences: Although all subjects experienced reduction in alcohol consequences at 3-month follow-up, frequent binge drinkers and binge drinkers significantly reduced alcohol-related consequences at 3-month follow-up. Conclusion: A single session, group, brief intervention was effective in reducing levels of drinking, alcohol related consequences, and judicial recidivism in adjudicated college students.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
LaBrie et al., 2007b	To investigate whether brief intervention sessions helps reduce alcohol consumption and alcohol-related negative consequences in female, adjudicated college students.	*N* = 115 female subjects (freshmen majority) Type of sampling: Convenience Recruitment: Judicial Affairs Office referral Setting: private university Inclusion criteria: adjudicated college students	Design: Quasi-experimental Length of follow-up: One academic year Attrition: 4% Group makeup: 2 to11 individuals Intervention duration: Two hours Theoretical framework: None Definitions: *Non-binge drinker* = did not engage in binge drinking in the last 2 weeks *Binge drinker* = binge drank 1-2 times in the last 2 weeks *Frequent binge drinker*= binge drank ≥ 3 times in the last 2 weeks	IV: TLFB, alcohol expectancies, normative feedback, BAC information, decisional balance, goal setting DV_1: Alcohol use: pre-intervention – self-reports; post-intervention – weekly diaries DV_2: Consequences: pre-intervention – RAPI; post-intervention – RAPI	Alcohol consumption: Over time, drinks/month, drinking days, average drinks, and maximum drinks experienced significant reductions in all categories of drinkers. Alcohol consequences: Over time, all categories of drinkers experienced significant reductions in alcohol consequences. Conclusions: Group, brief intervention designed for a female sample reduced drinking and alcohol-related consequences across three months of follow-up.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
LaBrie et al., 2011	To investigate whether brief intervention sessions helps reduce alcohol consumption and alcohol-related negative consequences in male, adjudicated college students.	*N* = 230 male students (majority freshmen) Type of sample: Convenience Recruitment: Sanctioning by university Setting: private university Inclusion criteria: adjudicated male college students	Design: Quasi-experimental Length of follow-up: Two years Attrition: 8% Group makeup: 8 to 15 individuals. Intervention duration: 60 to 75 minutes. Theoretical framework: None	IV: TLFB, alcohol expectancies, normative feedback, BAC information, relapse prevention, decisional balance, goal setting DV_1: Alcohol use – pre-intervention – self-reports post-intervention – weekly diaries DV_2: Consequences – Pre-intervention – RAPI Post-intervention – RAPI	Alcohol consumption: There was a main effect for the intervention on reduction in drinks consumed/month at 3-month follow-up for all subjects. Alcohol consequences: All participants experienced a main effect that showed a reduction in alcohol consequences at 3-month follow-up. Conclusions: Significant reductions in drinks per month and alcohol-related negative consequences were reported by all participants who received brief intervention-based group intervention over a 3 month period of follow-up.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
Henslee & Correia, 2009	To test the effectiveness of delivering personalized feedback to first-semester college freshmen in a group lecture format.	*N* = 216 subjects Type of sample: Convenient Recruitment: Subjects recruited in freshmen seminar programs. Setting: university Inclusion criteria: enrolled freshmen	Design: Experimental Length of follow-up: Five weeks. Attrition: Rates not provided Group makeup: Large numbers (lecture-format) of individuals Intervention Duration: 50 minutes Theoretical framework: None	IV: personalized feedback & alcohol education Control: Alcohol education DV_1: Alcohol use: pre-and post-intervention – DDQ, AUDIT, survey on perceived peer use DV_2: Consequences: pre- and post-intervention – RAPI DV_3: Motivation to change: pre- and post- intervention - RTC questionnaire	At 5-week follow-up: There were no significant reductions in alcohol use or alcohol-related consequences in experimental or control groups. The results regarding peer perception with respect to the quantity of alcohol consumed were significant. Females experienced a decreased in levels of pre-contemplation (indicating a shift toward changing), while males had increased levels of pre-contemplation (indicating a shift away from changing). All subjects had increased action scores, indicating a shift toward change. Conclusions: Feedback did not result in reductions in alcohol use or alcohol-related consequences. There were differences in those completing pre-test only and those completing post-test. Subjects in intervention group reported more accurate perceptions of the quantity of peer alcohol use at follow-up and were more ready to change than control participants.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
Correia et al., 2005	To test the relationship between substance use and substance-free behaviors in a natural environment.	*N* = 133 college students Type of sample: convenience Recruitment: psychology classes Setting: private university Inclusion criteria: psychology college students	Design: Experimental Length of follow-up: 4 weeks Attrition: 4% Theoretical framework: None Definitions: None	IV_1: Substance use reduction IV_2: Activity increase Control: No change in behavior DV_1: Behavior: Pre-intervention – Behavior Rating Form; Post-intervention – Behavior Rating Form DV_2: Substance use: Pre-intervention – DDQ and parallel versions of DDQ to assess use of other substances; Post-intervention – DDQ and other versions	Substance use reduction: SR subjects reported significantly fewer substance use days and significantly fewer alcohol use days than AI and control groups. Activity increase: AII subjects reported significantly more exercise days and creative days as compared to subjects in other groups. AI subjects reported a significant reduction in the frequency of substance use days and in the quantity of alcohol consumed. Conclusion: Reductions in substance use can be attained by increasing engagement in substance-free activities.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
Riley & Wood, 2008	To test an interactive form of small-group social norms correction with first-year students.	*N* = 502 Type of sample: Convenience Recruitment: freshmen orientation course Setting: university Inclusion criteria: Freshmen	Design: RCT Length of follow-up: 5 weeks Attrition: 44.5% Theoretical framework: None	IV: interactive small-group social norms correction (ISNC) health and safety presentation Control: standard social norms correction (SSNC) health and safety presentations DV_1: Alcohol use DV_2: Perceptions of others' alcohol use	Alcohol use: ISNC did not reduce alcohol consumption. Perception of others' alcohol use: Changes in misperceptions of alcohol use were found in ISNC conditions. Conclusion: Results do not support INSC as being an exclusive intervention to reduce alcohol use. However, ISNC may influence misconceptions, thereby serving as a population, preventative measure.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
Turner et al., 2008	To examine whether alcohol-related negative consequences decreased among students exposed to a social norms intervention.	*N* = varied depending on year Type of sample: Stratified random sampling (sample stratified by race and class year) Recruitment: List from registrar's office used to select subjects. Setting: university Inclusion criteria: all students enrolled at university	Design: Quasi-experimental Length of follow-up: Study occurred over 6 years Attrition: Not provided Theoretical framework: None	IV: dorm posters, campus posters, ads, music events, parent orientation, small group session DV_1: Alcohol use: post-intervention – number of drinks consumed during episode DV_2: Consequences : post-intervention-survey evaluating subjects experiencing possible negative outcomes and recall of exposure to intervention DV_3: Intervention exposure: post-intervention – survey inquiring about viewing normative alcohol messages	Alcohol use: Students exposed to the intervention had lower mean estimated BACs as compared to subject with no recall of exposure. Alcohol consequences: The proportion of subjects reporting no consequences increased substantially, whole the prevalence of multiple consequences decreased from year 2001-2006. Intervention exposure: There were variable proportions of subjects (56-78%) who recalled viewing alcohol messages from years 2003-2006. Conclusion: The marketing campaign resulted in decreases in the odds of students experiencing serious consequences associated with alcohol use resulted. In first-year students, exposure to the campaign was associated with lower estimated blood alcohol content, reduced alcohol consumption, and fewer adverse consequences.

Citation	*Purpose*	*Sample & Setting*	*Design & Methods*	*Measurement*	*Results*
Correia et al., 2003	To identify patterns of substance-free reinforcement deprivation associated with binge drinking	*N* = 246 undergrads Type of sample: Convenience Recruitment: Not discussed Setting: private university Inclusion criteria: undergraduate college students	Design: Non-experimental (those not classified as binge drinkers served as the comparison group) Length of follow-up: not applicable Attrition: 0% Theoretical framework: none Definitions: *binge drinker* = consuming five or more standard drinks of alcohol on at least two occasions during the last 30 days	DV_1: Substance use: surveys assessing drug and alcohol use DV_2: Alcohol consequences: RAPI DV_3: Activity pleasure: PES	Binge drinkers showed a relationship with the frequency of nonsocial, introverted, and passive outdoor activities. There were significant relationships between binge drinking and pleasure subscales. There was a significant relationship between the reinforcement potential derived from introverted and passive outdoor activities and binge drinking. Conclusions: Binge drinkers obtain less reinforcement from certain types of substance-free activities than non-binge drinkers. The existence of substance-free reinforcement deficits has implications for prevention efforts.

Summary

There was one systematic review, one meta-analysis, eleven single studies, and three recommendations included in the reviewed literature. With respect to the level of evidence of research, most investigations involved single randomized control trials or quasi-experimental, well-designed cohort studies. The groups receiving the intervention were small to large in size. Convenience samples were generally used in the above single studies. Implementing brief intervention in a group setting was shown to reduce alcohol consumption and negative alcohol-related consequences in college students and adjudicated college students. Using the specific brief intervention of normative feedback in a group setting appeared to increase college students' readiness to change and reduce alcohol consumption and negative alcohol-related consequences. Furthermore, promoting substance-free activities showed a reduction in college students' consumption of alcohol. Lastly, there are various national recommendations for providing interventions to reduce alcohol consumption among underage individuals, including college students.

Literature Appraisal

The Appraisal of Guidelines for Research and Evaluation (AGREE) Instrument (AGREE Collaboration, 2001) was employed to appraise the national recommendations for preventing and reducing alcohol consumption. The AGREE Instrument uses a four-point Likert scale to rate each item, with 92 being the maximum score. For critiquing the systematic review and meta-analysis, a method adapted from Whittemore (2005) was used. Additionally, each single study was appraised to assess the validity and relevance. Appraising research studies can assist clinicians to identify the most relevant, high-quality studies that are available to guide practice. The level of evidence of the reviews and single studies were rated, using methods adapted from Melnyk and Fineout-Overholt (2010). The level of quality of the reviews and single studies were graded through employing Grades of Recommendation (Johanna Brigg Institute, 2008). Table

2.3 depicts the appraisal of the systematic review, meta-analysis, and single studies included in the literature review

Prevention and Alcohol Use Reduction Strategies Developed By National Bodies

Guidelines developed by national bodies for alcohol and substance use were reviewed. The AGREE instrument (AGREE Collaboration, 2001) was used to evaluate the scope and purpose, stakeholder involvement, rigor of development, clarity and presentation, applicability, and editorial independence. “A Call to Action: Changing the Culture of Drinking at U. S. Colleges” specifically described the NIAAA (2002) publication’s overall objective. The objective recommends substance abuse prevention strategies for all college students. Additionally, the clinical question covered by the guideline is described, as the question involves determining the strategies that are available for the prevention of alcohol use/abuse in college students. Answers to this question involve various interventions, based on the tiers described in the recommendation. Tier 1 interventions are more effective in prevention of alcohol use/abuse as compared to Tier 4 interventions, which are less efficacious. The patients for whom the guideline is meant to apply are specifically described, as the guideline is meant for various individuals, including college students. With respect to stakeholder involvement, the guideline development includes individuals from all the relevant professional groups.

The guideline has been produced by the Task Force on College Drinking, an entity supported by the NIAAA (2002). Those composing the Task Force who were instrumental in the development of guidelines (i.e. physicians, nurses, psychologist, etc.) are specified. There is no evidence that patients’ or students’ views and preferences had been sought when developing the guideline. The target users of the guideline are specified, including colleges and universities, researchers, and the NIAAA; however, no pilot implementation of the guideline was undertaken. Concerning rigor of development, no systematic methods were used to search for evidence or for formulating the recommendation. When formulating the recommendations, health benefits have been considered, since by implementing strategies to prevent or decrease alcohol

consumption, the negative alcohol-related consequences can be avoided or minimized. There is an explicit link between the recommendations and the supporting evidence. Multiple citations are provided within the body of the text and subsequent references are listed. This guideline was not externally reviewed by experts prior to its publication and no procedures for updating the guideline were provided. Concerning the clarity and presentation of the guidelines, the recommendations made by the Task Force are specific and clear. Different options for management of the condition are clearly presented including offering brief intervention; increasing enforcement of minimum drinking age laws; adopting campus-based policies and practice that appear to be capable of reducing high-risk alcohol use; and providing blood alcohol content feedback to students. In terms of applicability, the barriers in recommendation application, potential cost implications of applying the recommendation, the criteria for monitoring or auditing the guideline, or recorded conflicts of interest among development members are not discussed. The AGREE score for the guideline provided by the Task Force on College Drinking is 55.

The objective of the National Prevention Council's (2011), "National Prevention Strategy: America's Plan for Better Health and Wellness", was described by making recommendations addressing the clinical question. Answers to the clinical question involve various interventions, including (a) creating healthy and safe environments, (b) developing clinical and community preventative services, (c) empowering people, and (d) eliminating health disparities. The specific question related to Priority 2, include identifying strategies that can be implemented to prevent drug and excessive alcohol use. Answers to this question involve supporting alcohol policies, changing the environment to empower young people, identifying disorders early and providing treatment, and decreasing access to alcohol and drugs. The guideline is meant for those individuals at any age, thus specifying the population for which the recommendations are intended. The guideline development includes individuals from all the relevant professional groups, including physicians, nurses, and psychologists. There is no evidence that patients' or

students' views and preferences had been sought when developing the guideline. The target users of the guideline are specified, including policy makers, purchasers, employers, funders, data collectors, researchers, health care providers, and educators; however, the guideline was not piloted among the identified potential users. Concerning rigor of development, no systematic methods were used to search for evidence or for formulating the recommendation. Various health benefits can be achieved by implementing strategies to increase the health of Americans and, specifically, prevent drug use and excessive alcohol use. Other benefits include improved environments, better health services, empowered people, and fewer health disparities. The recommendations are supported, as evidenced by citations located within the body of the text and several reference lists provided, including a list of references that support key evidence-based recommendations. There is no mention of evidence that experts have externally reviewed the guideline prior to its publication or procedures for updating the guideline. However, there is a list of key indicators that will be used for monitoring the outcomes of the suggested recommendations. In terms of applicability, the barriers in recommendation application, potential cost implications of applying the recommendation, the criteria for monitoring or auditing the guideline, or recorded conflicts of interest among development members are not discussed. The AGREE score for the recommendations provided by the National Prevention Council is 53.

The USDHHS' (2007) guideline, "The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking", includes a clear objective and clinical question. The objective was to recommend strategies to prevent and reduce alcohol use in underage drinkers. Answers to the clinical question involve the implementation of various interventions to change the adolescent and to change the adolescent's environment. The patients to whom the guideline is meant to apply are specifically described. Developing the guideline includes work generated from some relevant individuals (i.e. the Surgeon General and Secretary of Health and Human Services). There is no evidence that patients' or students' views and preferences had been sought when developing the guideline. The target users of the guideline are specified, including

parents, schools, communities, and health care providers, but this guideline lacks piloting among these users. In regard to rigor of development, no systematic methods were used to search for evidence or for formulating the recommendation. The health benefits have been considered in formulating the recommendations. The guideline recommends that by implementing strategies to prevent or decrease alcohol consumption among underage drinkers, negative alcohol-related consequences can be reduced and detrimental effects of alcohol on the young developing body can be minimized. There is an explicit link between the recommendations and the supporting evidence, as citations are provided in the body of text and references are listed. There is a list of scientific experts who reviewed the guideline prior to its publication. However, it should be noted that the procedure for updating the guideline is lacking. No barriers or potential cost implications in recommendation application were discussed in the guideline. Additionally, no criteria for monitoring purposes were presented in the guideline. The guideline is editorially independent from the funding body and editors of the guideline are not affiliated with USDHHS. Nevertheless, the guideline does not mention recorded conflicts of interest among development members. The AGREE score for the USDHHS' guideline is 55.

Implementing Multi-component, Group, Brief Intervention

The systematic review conducted by Moreira and colleagues (2010) establishes the issue of alcohol misuse with respect to college and university students. The Cochrane methodology is used to conduct the review. However, it is not identified in the review whether the investigators have expertise in this methodology. The authors conducted a comprehensive and explicit literature search, using multiple databases and a detailed search strategy. An explicit, unbiased, and reproducible method was used for data extraction. Two independent authors (a) extracted data from published sources using a standard data recording form, (b) independently assessed studies included in the review to reduce the risk of bias, (c) resolved differences through discussion, and (d) contacted original authors when additional information concerning studies was needed. The key variables or indicators of methodological quality that

were addressed included adequate sequence generation, allocation concealments, incomplete outcome data addressed, free of selective reporting, blinding of study personnel, and blinding of outcome assessors. The data was analyzed in a systematic fashion using standardized mean difference (SMD) estimates to measure the treatment effect. The SMD for various factors were reported with respect to follow-up period and tables or graphs were used to illustrate and summarize data. The conclusions made by the authors were logically drawn from the results of the review. The inability of the authors to identify all unpublished data and retrieve all missing data that met inclusion criteria can be considered a methodological limitation, resulting in potential biasing of the results of the systematic review.

The meta-analysis conducted by Vasilacki and colleagues (2006) examined whether brief intervention is more successful in limiting alcohol consumption as compared to no or typical interventions. In the introduction, several single studies and three reviews are mentioned that discuss the efficacy of brief intervention for those individuals who abuse substances, including alcohol. The cited sources are credible; however, no method is explicitly identified to determine credibility. Furthermore, it is unknown whether the investigators have expertise in the content or methodology to conduct reviews. The authors conducted a comprehensive and explicit literature search, using several databases. Data extraction techniques of the analysis are not described. The Miller Methodological Quality Rating Scale was utilized to establish the primary study quality. Several criteria are assessed including group allocation, quality control, follow-up rate, follow-up length, contact, collaterals, objective, dropouts, attrition, independent, analysis, and multisite locations. Data analysis was systematic that centered on the analysis of effect sizes, using Coe's Effect Size Calculator. The variability of findings that were addressed include readiness to change, age and brief intervention, gender and brief intervention, duration and training of brief intervention, and components of brief intervention. The conclusions were drawn from the results of the review and the complexity of the clinical problem. There are several methodological limitations, which includes treating all of the studies used in the review

similarly regardless of variation in methodology of the individual study, overgeneralizing of the review results, and using studies in the review that employed graduate-student psychologists to deliver the intervention rather than experienced clinicians working clinical settings.

Since most of the studies conducted by LaBrie and colleagues (2006, 2007a, 2007b, & 2011) used a quasi-experimental design, the establishment of a causal link between brief intervention and the outcomes was limited. However, the two of the studies (LaBrie et al, 2008; LaBrie et al, 2009) did use an experimental design, establishing causation between the independent and dependent variables. Concerning data collection, the assessment tools used and the points at which data was gathered were appropriate in the studies conducted by LaBrie and colleagues (2006, 2007a, 2007b, 2008, 2009, 2011). In addition to alcohol consumption and alcohol-related consequences, two of the studies (LaBrie et al, 2006; LaBrie et al, 2007a) assessed the subjects' readiness to change, which is an important consideration in alcohol consumption behavior. Appropriate statistical tests were employed to analyze the collected data from each of the studies and interpretations flowed logically from the results. The studies had similar threats to the internal and external validity. Regarding internal threats, a pretest and posttest was used in all of the studies, thus, testing is a potential threat to the results gathered. However, instrumentation was controlled because the same measurements were used in the pretest and posttest. With respect to external validity, reactivity must be considered, since participation of subjects in the study can influence the results. Another external threat is the effects of selection, since only certain subjects were selected to participate (e.g. males, females, adjudicated males, and adjudicated females). Thus, generalization to other freshmen, upperclassmen, and young adults not attending college is reduced. In those studies employing the use of quasi-experimental design, the lack of a control group is considered a limitation (LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2007b; & LaBrie et al, 2011). Additionally, using convenience sampling, relying on self-reports for data collection, and implementing a

multicomponent intervention can be limitations of most studies conducted by LaBrie and colleagues (2006, 2007a, 2007b, 2008, 2009, 2011).

The authors recommend that further research should be conducted regarding the discovery of the specific intervention that was successful in achieving the desired outcomes and testing the effectiveness of similar group, brief intervention with typical college students and high-risk groups on college campuses. Furthermore, studies that used quasi-experimental design should be repeated employing an experimental, randomized controlled trial design (LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al 2007b; & LaBrie et al, 2011).

Targeting College Students with a Specific, Brief Intervention: Normative Feedback

Henslee and Correia (2009) used an RCT design to establish causation between the variables. With respect to data collection, the tools used to make measurements were appropriate, reliable, and valid. Considered a limitation, the posttest data collection point occurred too quickly, since the study was only five weeks in duration. Appropriate descriptive and inferential statistical tests were used and interpretations flow logically from the study's results. Regarding threats, since convenience sampling was employed, selection bias is an internal threat. Reactivity and the effects of selection are considered external threats. The results of the study can be generalized to college freshmen only. According to Henslee and Correia (2009), the subjects showed inclination to change, but no actual change in alcohol consumption behavior at post-intervention assessment. Thus, if the assessment after the intervention occurred later, the subjects may have displayed reduced alcohol consumption, in addition to readiness to change. Further research should be conducted regarding the integration of personalized feedback into courses that are designed to help freshmen transition from high school to college. Additional research should also be conducted using extended follow-up periods to assess fully the impact of incorporating a personalized feedback lecture into freshmen seminar programs.

Reilly and Wood (2008) study used an experimental design, which establishes causation between normative feedback and alcohol consumption. The tools used to assess the subjects' behavior were reliable and valid. Since post-intervention data were gathered at three weeks after subjects received the intervention, data collection may have occurred too early. Appropriate statistical tests were used and interpretations were based on the study's results. Regarding internal threats, selection bias could result since convenience sampling was employed. With respect to external threats, reactivity could occur by subjects simply participating in the study. Reactivity and the effects of selection are external threats. The results of the study can be generalized to college freshmen only. This study is also limited by high attrition, using self-reported data, and lack of ethnic and racial heterogeneity. Additional research should be conducted using a social norms approach in small groups to validate and transfer this intervention to larger groups.

Turner and colleagues' (2008) study used a quasi-experimental design, limiting the establishment of a causal link between normative feedback and alcohol consumption. The number of data collection points is reasonable. However, the tools that were used to assess the subjects have questionable reliability and validity. Appropriate statistical tests were used and interpretations were based on the study's results. Concerning internal threats, sampling bias and testing are minimized, since random stratified sampling and only a posttest is employed, respectively. With respect to external threats, reactivity must be considered, since the subjects may alter their behavior by virtue of study participation. The effects of selection are minimized, because a method of randomized sampled selection is utilized, increasing generalizability to a college student population. The limitations of the study include the lack of a control group and the use of questionably reliable and valid tools. As recommended by the investigators, further research should be conducted regarding the penetration of the audience by the intervention and replicating this study on other college campuses.

The Use of Substance-free Events

A study conducted by Correia and colleagues (2003) used a non-experimental design, limiting the causal relationship between the independent and dependent variables. The tools used for data collection were appropriate, reliable, and valid. The data collection points are appropriate, but more collection points were needed to further determine the relationship between substance use and substance-fee activities. Appropriate descriptive and inferential statistical tests were used and interpretations flow logically from the study's results. Regarding threats, since convenience sampling was employed, selection bias is an internal threat. Reactivity and the effects of selection are external threats. The results of the study could be generalized to binge drinkers only. Further research should be conducted to discover relationships between binge drinking and substance-free activities using an improved definition of binge drinking.

Correia, Benson, and Carey's (2005) study used an RTC experimental design, which establishes a causal link between variables. The number of data collection points is reasonable and instruments used to measure dependent variables were appropriate. Statistical tests were used and interpretations were based on the study's results. Concerning internal threats, the risk of sampling bias is increased, as convenience sampling was used. Additionally, testing is another internal threat, as measurements were taken before and after the intervention. With respect to external threats, reactivity must be considered, since the subjects may alter their behavior by virtue of study participation. The study is limited since a predominant female sample population was used, thus making it possible to only generalize study results to female college students. Another limitation of the study is that the result regarding reductions in substance use with respect to the activity increase group are not as strong as compared to the substance use reduction group, although the results for the activity increase group were statistically significant. Regarding future research, the investigators recommend that more studies should be conducted using more objective measure of both substance-related and substance-free behaviors to better

determine the relationship between substance use and alternative reinforcements in the natural environment.

Table 2.3

Appraisal – Reviews and Single Studies

Citation	*Level of Evidence/Quality*	*Strengths of Study*	*Limitations of Study*	*Application to EBP Project*
Moreira et al., 2010	I, B	- Purpose of systematic review is clearly stated -The review provides a compilation of work regarding the implementation of brief MI interventions in college students to reduce alcohol consumption -Specific methodology was used to conduct review	-Biasing of results due to the authors failing to identify all unpublished data and the lacking of retrieving all missing data that met inclusion criteria -Unknown whether the authors were experienced in conducting systematic reviews.	-Study subjects and setting are comparable to population of interest -Some components of the interventions delivered in the studies included in the review can be feasibly implemented in the project's setting and population.
Vasilaki et al., 2006	I, B	-Purpose of meta-analysis is clear -The analysis is an excellent compilation regarding the implementation of brief MI interventions in college students to reduce alcohol consumption	-Authors not directly addressing excessive alcohol use as a problem. -No review method is explicitly identified. -Unknown whether the investigators have expertise in the content or methodology to conduct reviews. -Treatment of all of the studies used in the review similarly regardless of variation in methodology of the individual study -Overgeneralization of the review's results	-Study subjects and setting are comparable to population of interest -Some components of the interventions delivered can be feasibly implemented in the project's setting and population.

Citation	*Level of Evidence/Quality*	*Strengths of Study*	*Limitations of Study*	*Application to EBP Project*
LaBrie et al., 2007a	IV, B	-Purpose of study is clear. -Readiness to change was measured in addition to measurement related to alcohol. -Intervention is replicable.	-Study lacks a true control group. -Reliance on self-report data to measure alcohol use -Exclusion of women from study -Difficult to determine the effective aspects of the intervention	-Population of interest and study's subjects and setting are comparable. -Some components of intervention can be easily replicated.
LaBrie et al., 2008	II, B	-Purpose of study is clear -Use of experimental design with randomization to treatment groups -The subjects in the treatment and control groups were comparable based on demographic information -Low attrition rates for experimental and control groups -Intervention delivered by MI-trained facilitators -Intervention fidelity measured to ensure adherences to MI principles -Study intervention is replicable	-Randomization to treatment groups not being performed by the researchers -Use of convenience sampling -Biasing of experimental and control group with the researchers assessing both groups -Use a multicomponent intervention, making it difficult to determine which component was efficacious -Stipends given as incentives to subjects for participation ($40 for completion of initial survey and intervention attendance, $10/week for follow-up participation)	-Study subjects and setting are comparable to population of interest -Some components (TLFB, normative feedback, and BAC information) of intervention can be feasibly implemented in the project's setting and population.

Citation	*Level of Evidence/Quality*	*Strengths of Study*	*Limitations of Study*	*Application to EBP Project*
LaBrie et al., 2009	II, B	- Purpose of study is clear - Use of experimental design with randomization to treatment groups - The subjects in the treatment and control groups were comparable with respect to demographics -An additional, six-month follow-up period was used to assess the interventions long-term efficacy -Low attrition rates in both experimental and control groups -Replicable study interventions implemented	-Randomization to experimental and control groups not being performed by researchers -Potential bias of experimental and control groups because of the investigators conducting assessments of both groups -Use of convenience sampling -Use of a multi-component intervention -Stipends given to subjects completing study ($40 for completion of baseline assessment and group attendance, $10/week for drinking diary completion, $20 for completion of 6-month follow-up)	-Study subjects and setting are comparable to population of interest -Some components (TLFB, normative feedback, and BAC information) of intervention can be feasibly implemented in the project's setting and population.
LaBrie et al., 2006	IV, B	- Purpose of study is clear -Readiness to change was measured in addition to measurement related to alcohol -Generalization of the study's results to both adjudicated males and females is promoted -No differences between those completing baseline assessment and post-intervention follow-up -Attrition rates are low -Intervention is replicable.	-Use of convenience sampling for sample selection -Sampling bias resulting from the use of students referred from the university's Judicial Affairs Office -Use of self-reports for a portion of post-intervention data collection -Use of a multi-component intervention makes it difficult to determine which aspects of the intervention were effective -Lack of a control group	-Study subjects and setting are comparable to population of interest -Some components (TLFB and normative feedback) of intervention can be feasibly implemented in the project's setting and population.

Citation	*Level of Evidence/Quality*	*Strengths of Study*	*Limitations of Study*	*Application to EBP Project*
LaBrie et al., 2007b	IV, B	- Purpose of study is clear - Low attrition rate -Intervention is replicable	-Use of convenience sampling -Lack of a control group -Use of a multi-component intervention -Use of self-reports of alcohol consumption by subjects -Sampling bias based on Judicial Affairs Office referral	-Study subjects and setting are comparable to population of interest -Some components (TLFB, normative feedback, and BAC information) of intervention can be feasibly implemented in the project's setting and population.
LaBrie et al., 2011	IV, B	- Purpose of study is clear -Low attrition rate - Study interventions are replicable	-Lack of control group -Use of convenience sampling -Potential sampling bias as a result of sanctioning by the university -Use of a multi-component intervention	-Study subjects and setting are comparable to population of interest -Some components (TLFB, normative feedback, and BAC information) of intervention can be feasibly implemented in the project's setting and population.
Henslee & Correia, 2009	II, A	- Purpose of study is clear - Use of experimental design with randomization to treatment groups - Readiness to change was measured in addition to measurement related to alcohol -The subjects in the treatment and control groups were comparable based on demographic information.	-Use of convenience sampling -Premature conduction of the post-intervention assessment. -Incentive of 2 hours extra credit toward seminar course as compensation for participation -There were significant differences between students who completed the follow-up assessment and those who did not complete the assessment.	-Study subjects and setting are comparable to population of interest -Normative feedback can be feasibly implemented in the project's setting and population -Large-group format for participant recruitment and intervention implementation is very feasible

Citation	*Level of Evidence/Quality*	*Strengths of Study*	*Limitations of Study*	*Application to EBP Project*
Reilly & Wood, 2008	II, A	- Purpose of study is clear - Use of experimental design with randomization to treatment groups - Readiness to change was measured in addition to alcohol use -The subjects in the treatment and control groups were comparable based on demographic information.	-Use of convenience sampling -Premature conduction of the posttest. -High attrition rate affecting validity of study findings -Use of self-reported data. -Lack of ethnic and racial heterogeneity	-Study subjects and setting are comparable to population of interest -Normative feedback can be feasibly implemented in the project's setting and population. -Small-group format for participant recruitment and intervention implementation is very feasible
Turner et al., 2008	IV, B	- Purpose of study is clear - Only slight variations are noted between subjects based on year of study regarding demographic characteristics -Study had long follow-up period - Study interventions well-described -Use of post-test only reduces testing error as internal threat	-Lack of a control group -Use of questionably reliable and valid tools -Multi-component intervention used, making it difficult to determine which component resulted in decreased alcohol consequences -Incentives used to recruit subjects for study participation -Not all components (i.e. music event, parent education, small group intervention) of intervention may be feasible at most college campuses	-Study subjects and setting are comparable to population of interest -Social norming via displaying posters can be feasibly implemented in the project's setting and population.

Citation	*Level of Evidence/Quality*	*Strengths of Study*	*Limitations of Study*	*Application to EBP Project*
Correia et al., 2003	VI,B	-Study aim is clear -Establishment of relationship between binge drinking and substance-free reinforcement -Indication of binge drinking prevention efforts in college students due to the existence of substance-free reinforcement deficits -Although the study's design was non-experimental, a comparison group used	-Subjects participating in study received incentive, as completing study fulfilled a course requirement -The use of other substances by the subjects is a confounder -Lack of independent variable manipulation -Non-experimental design	-Study subjects and setting are comparable to population of interest - Feasibility of implementing intervention is not possible since an independent variable was not manipulated
Correia et al, 2005	II, B	-Purpose of study stated clearly -No differences regarding exercise/activity or substance use existed between subjects assigned to various groups -Experimental design used -Low rate of attrition -Intervention can be implemented in similar setting	-Extra credit given to subjects in psychology class as an incentive for study completion -Use of convenience sampling -The sample consisted predominantly of female college students	-Study subjects and setting are comparable to population of interest -Increasing activity in college students is feasible in the project's setting and population.

Construction of Evidence-Based Practice

In order to construct evidence-based practice, the appraised literature was synthesized. Based on the literature's synthesis, the project leader created a best practice model recommendation in order to answer in the proposed PICOT question.

Synthesis of Appraised Literature

The synthesis of the appraised literature focused on the population, intervention, and the format of the intervention. Regarding the population to be targeted, most of the single studies had freshmen students composing the majority of the sample (Henslee & Correia, 2009; LaBrie et al, 2006; LaBrie, 2007a; LaBrie, 2007b; LaBrie et al, 2008; LaBrie et at, 2009; LaBrie et al, 2011; Moreira et al, 2010). Additionally, with respect to problematic drinking, there were more adjudicated freshmen than upperclassmen. Thus, implementation of an intervention to prevent or reduce alcohol consumption in the freshmen population is paramount. There are additional rationales that support implementing an intervention for college freshmen. Freshmen (a) are particularly vulnerable to the misuse of alcohol after arriving to campus, (b) are tempted to use alcohol when the opportunity presents itself, (c) use alcohol to cope, as they exhibit greater anxiety that is linked with unfamiliar social and academic environments, and (d) have distorted perceptions regarding peer use and abuse of alcohol (Croom et al, 2008).

It is recommended that the intervention should focus on changing the population and the target population's drinking behaviors and environment (USDHHS, 2009; National Prevention Council, 2011; NIAAA, 2002). To change the target population's behavior brief intervention was implemented, which consists of (a) TLFB assessment, (b) alcohol expectancies, (c) normative feedback, (d) BAC information, (e) decisional balance, (f) reasons for drinking, and (g) behavioral goal setting. Studies that evaluated the efficacy of brief intervention using one or more components found that brief intervention helped to reduce alcohol consumption in young adult, college students (Henslee & Correia, 2009; LaBrie et al, 2006; LaBrie, 2007a; LaBrie,

2007b; LaBrie et al, 2008; LaBrie et at, 2009; LaBrie et al, 2011; Moreira et al, 2010; Turner et al, 2008; Reilly & Wood, 2008). Additionally, brief intervention was found to assist in motivating college students to change their drinking behavior and minimize negative alcohol-related consequences.

Regarding specific components of brief intervention, it should be noted that assessment, such as TLFB, actually serves as part of the intervention. With assessment, participants are made aware of the actual quantity and frequency of alcohol consumption. Assessment itself could help increase the motivation to change drinking behavior to result in the actual behavior modification of reduced drinking (LaBrie et al, 2006; LaBrie, 2007a; LaBrie, 2007b; LaBrie et al, 2008; LaBrie et at, 2009; LaBrie et al, 2011). Additionally, based on the research, normative feedback is another specific component of brief intervention that has shown to reduce alcohol consumption (Moreia et al, 2010). LaBrie and colleagues (2006, 2007a, 2007b, 2008, 2009, 2011) discussed that most college students make overestimations concerning the quantity and frequency of alcohol consumption of the average student. With normative feedback, misconceptions about individual and peer alcohol consumption are corrected, resulting in decreases in the quantity and frequency of drinking. Thus, by informing students of the actual quantity and frequency of drinking, which is lower than the estimation, helps to reduce alcohol consumption.

Based on the research, there are multiple rationales to support the delivery of brief intervention in group-format. The use of groups is highly cost-effective and helps to maximize organizational resources (LaBrie et al, 2006; LaBrie et al, 2009; LaBrie et al, 2011; Turner et al, 2008). Conducting the implementation of brief intervention in groups also enhances the facilitation of normative feedback. With group-formats, accurate perceptions of the quantity of peer alcohol use are conveyed (Henslee & Correia, 2009; LaBrie et al, 2011). Furthermore, delivering normative feedback in groups increases the interaction to change misperceptions regarding alcohol use in college students (Reilly & Wood, 2008). Based on the research

conducted by LaBrie and colleagues (2007a), it is important to have groups consist of individuals who have varied drinking statuses, ranging from non-drinkers to frequent binge drinkers. This is important because peers who consume less alcohol help to better correct misperceptions among college students who engage in frequent binge drinking. The literature also revealed that the delivery of brief intervention in groups increases the motivation to change (Henslee & Correia, 2009; LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2007b; LaBrie et al, 2008). Enhanced motivation can be due to healthy effects resulting from group dynamics or the diffusion of resistance that is accomplished with group-formats (LaBrie et al, 2006). Additionally, the delivery of brief intervention in groups helps to facilitate conversation and share many thoughts of group members (LaBrie et al, 2008; LaBrie et al, 2009; LaBrie et al, 2011). With group conversation, discussions can take place about dealing with risky situations involving alcohol. Additionally, group members can debate the advantages and disadvantages of alcohol consumption, thus helping implement the component of decisional balance (LaBrie et al, 2011).

Group, brief intervention is more feasible and cost-effective as compared to individualized, brief intervention. In addition to group-format being the most widely used configuration for substance abuse treatment, the dynamics of a group can have very healthy effects on treatment effectiveness (Foote et al, 1999).

Best Practice Model Recommendation

Based on the appraisal of literature, college freshmen were targeted. The multi-component intervention implemented included brief intervention, the promotion of substance-free events, and increasing awareness of the campus alcohol policy and is enforcement. Specific components of brief intervention that were implemented included an assessment of the population's alcohol consumption, normative feedback, eBAC education, and decisional balance. Lastly, the intervention was delivered in a group-format. Using a group-format is the

most feasible for the implementation of the EBP project for this organization and is supported by the literature. Appendix A depicts the best practice model recommendation.

In order to change the population's environment, various interventions were implemented. Modifying the environment was implemented through the promotion of substance-free events. The local community and project campus have many opportunities to promote socialization through alcohol-free events. Changing the environment of the population also includes making the population aware of campus alcohol policies and their subsequent enforcement if violated.

Answering Clinical Question with Best Practice

The best practice recommendation formulated assisted in addressing the posed clinical question of, "In college freshmen, how does a multi-component intervention influence alcohol consumption over a four month period?" The recommendation incorporated an intervention that was supported by the literature indicating that this intervention has been previously successful in reducing alcohol consumption in college freshmen. Based on the review of literature and the literature appraisal, it was hoped that the desired outcome of reducing alcohol consumption was achieved with group, brief intervention, recommending the components of assessment, normative feedback, eBAC education, and decisional balance, specifically. Furthermore, through the promotion of alcohol-free activities and awareness of campus alcohol policy and its enforcement would help change the collegiate environment to reduce alcohol consumption in college freshmen on the project's campus.

CHAPTER 3

METHODS

Implementation of Practice Change

Sample and Setting

The EBP project took place at a small, private, non-for-profit, Lutheran university. Founded in 1859, the University consists of multiple colleges including arts and sciences, business administration, engineering, and nursing. In addition, the University has a School of Law. Approximately 3,000 undergraduates as well as 1,100 graduate and law students attend the university (Valparaiso University, 2011a). These students are from over 40 countries, with the majority being from the U. S. The student body is composed of 48 percent males and 52 percent females, with approximately 66 percent residing on campus.

The target population for this project was young adult, college freshmen, enrolled full-time during the fall semester of 2011. The 2011 full-time freshmen population on this project campus consisted of approximately 700 students.

Outcomes

The EBP project implemented a multi-component intervention to promote the reduction of alcohol consumption in college freshmen. Based on EBP project principles, evaluation of the effectiveness of the intervention also took place. Pre-project and post-project surveys were administered to assess the each participant's level of alcohol consumption, importance and confidence in changing alcohol consumption behavior, and experience with negative alcohol-related consequences. These outcome measures have been employed in previous research conducted that addressed young adult, college student alcohol consumption behaviors (Correia et al, 2003; Henslee & Correia, 2009; LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2007b; LaBrie et al, 2008; LaBrie et al, 2009; LaBrie et al, 2011; Reilly & Wood, 2008; Turner et al, 2008).

Data collection. Alcohol consumption, importance and confidence in changing alcohol consumption behavior, and negative, alcohol-related consequences experienced by participants were measured before and after the multi- component intervention. The surveys consisted of items adapted from questionnaires previously used by investigators who conducted research to determine the efficacy of intervention implemented to decrease alcohol use among college students (Correia et al, 2003; Henslee & Correia, 2009; LaBrie et at, 2006, LaBrie et al, 2007a; LaBrie et al, 2007b, LaBrie et al, 2008; LaBrie et al, 2009; LaBrie et al, 2011). At the beginning of the fall semester 2011, student participants completed the pre-project survey during freshmen orientation. The on-line, post-project survey was completed during the fifteenth week of fall semester classes.

Outcome measures reliability and validity. The pre-project and post-project surveys were divided into three sections (see Appendices D and F). The first section of the surveys measured various demographic characteristics and alcohol consumption behaviors of the project participants. The second section assessed the participants' confidence and importance in changing alcohol consumption behavior. The third section measured negative alcohol-related consequences that were experienced by participants prior to and during project implementation. The surveys were adapted from previously developed instruments used by researchers studying the efficacy of interventions implemented to reduce alcohol consumption among college students.

The first section of both surveys contained questions assessing each participant's demographics and alcohol consumption. With respect to the demographic information, age, gender, and ethnicity were assessed. Many research studies investigating interventions to reduce alcohol consumption used these demographic markers to describe the characteristics of the sample population. Alcohol consumption was measured using questions adapted from the Alcohol Use Disorders Identification Test (AUDIT), an instrument utilized by Babor, Higgens-

Biddle, Saunders, and Monteiro (2001). The AUDIT was developed to enable clinicians to screen for alcohol abuse and identify excessive alcohol consumption (Babor et al, 2001).

Several questions were selected from the AUDIT that measured acute alcohol use, which represents typical drinking behavior exhibited among college students. The AUDIT was selected because this tool provides a highly reliable, brief, rapid means to assessing a person's alcohol consumption. In a study conducted using college students as the sample, Fleming, Barry, and MacDonald (1991) determined that the reliability of the AUDIT is 0.80. Henslee and Correia (2009) also used the AUDIT to measure alcohol use of college freshmen. Additionally, a Likert in this tool is a ratio level of measurement. After data collection, inferential statistical calculations were conducted using ratio level of measurement.

The second section of the surveys measured the participants' importance and confidence in changing their alcohol consumption behavior. Harris, Walters, and Leahy (2008) measured confidence and importance in changing alcohol consumption behaviors, discovering that increases in these two factors helped predict an actual reduction in alcohol consumption in college students. As postulated by TTM, individuals must be ready to change before they demonstrate actual behavior modifications (Prochaska & DiClemente, 1983; Prochaska et al, 1994). It has been found that importance and confidence in changing a particular health behavior is relevant in relation to actual behavior change. Several studies have used similar tools to measure subjects' motivation to change (Henslee & Correia, 2009; LaBrie et al, 2006; LaBrie et al, 2007a) and found that frequent binge drinkers showed more motivation to change as compared to those engaging in alcohol consumption less frequently. In addition to being used in the research, these importance and confidence in changing rulers were selected because these tools provide a quick, way to assess an individual's motivation to change drinking behavior. Additionally, because the rulers are essentially visual analog scales, the measures are quantified as a ratio level of measurement, which were used to make calculations using inferential statistics.

The third section of both surveys had questions assessing the project participants' experience with negative, alcohol-related consequences. Alcohol-related negative consequences can include, but are not limited to, missing work or class, causing embarrassment to others, or suffering injuries. Items adapted from the Rutger's Alcohol Problem Index (RAPI) were employed to assess these potential negative consequences. Similar to the items that were selected from the AUDIT, the questions chosen from the RAPI assess negative consequences associated with acute alcohol use in young adult college students. The RAPI has an internal consistency of 0.92 (White & Labouvie, 1989) and has been employed to assess alcohol-related consequences in multiple research studies (LaBrie et al, 2007; LaBrie et al, 2008; LaBrie et al, 2009; LaBrie et al 2006; LaBrie et al, 2011; Henslee & Correia, 2009; Correia et al, 2003). The RAPI allows investigators to assess quickly negative, alcohol-related consequences. Furthermore, the data collected using the RAPI is ratio level of measurement. Based on the ordinal level of measurement, the data was analyzed with inferential statistics to evaluate the effectiveness of the intervention.

Data analysis. The pre-project and post-project data were analyzed using descriptive and inferential statistics. Specifically, descriptive statistics were employed to analyze demographic data and report measures of central tendency and variance. In addition, inferential statistics were used to determine significant results and reach conclusions about the data. Dependent variables that were measured consisted of post-project alcohol use, social perceptions related to alcohol use, confidence and importance in changing alcohol consumption behavior, and negative, alcohol-related consequences experienced by participants.

Intervention

Throughout the duration of the 2011 fall semester, there were several occasions where components of the project were implemented. The interventions were conducted in either large group, small group, or web-based formats. With respect to the first strategy, conducted at fall freshmen orientation, the project leader implemented the intervention of assessment. As

demonstrated by multiple research studies (Henslee & Correia, 2009; LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2007b; LaBrie et al, 2008; LaBrie et al, 2009; LaBrie et al, 2011; Turner et al, 2008), assessment is efficacious in reducing alcohol consumption in young adult, college students. Through assessing alcohol use, participants objectively examine the frequency and quantity of their alcohol consumption, which in itself helps to increase awareness and thus change drinking behavior.

Three weeks after the start of the semester, the next strategy was implemented. This strategy included the use of “maintenance” e-mail and Twitter messages sent to all project participants. The purpose of these messages was to provide participants with normative feedback information. This normative feedback information was obtained from the participants’ responses on the pre-project survey regarding alcohol use. Utilizing the data reported by the students on the pre-project survey helped to correct misperceptions that these young adults may have with respect to alcohol consumption, as illustrated by research conducted (Henslee & Correia, 2009; LaBrie et al, 2007a; LaBrie et al 2009; LaBrie et al, 2011; NIAAA, 2002).

During the fifth week of classes, the third strategy was implemented. This strategy consisted of one “maintenance” session conducted in two freshmen residence halls. These residence hall “maintenance” sessions totaled two separate sessions conducted by the project leader. At these sessions, the components of eBAC education and normative feedback information were iterated. eBAC levels are an estimation of blood alcohol content based on the type and quantity of alcohol consumed over a defined period of time. eBAC education has been used by researchers developing strategies that address alcohol consumption in young adult college students (Henslee & Correia, 2009; LaBrie et al, 2007b; LaBrie et al, 2008; LaBrie et al 2009; LaBrie et al, 2011; Moreira et al, 2010; NIAAA, 2002; Vasilaki, 2006). eBAC levels were calculated based on “Mocktails” consumption at the “maintenance” sessions. The participants received eBAC education, since researchers have shown this intervention to be successful in reducing alcohol consumption among young adult, college students (Henslee & Correia, 2009;

LaBrie et al, 2008; LaBrie et at, 2009; LaBrie et al, 2011; Moreira et al, 2010; NIAAA, 2002; Vasilaki, 2006). Participants were also given information regarding perceived and actual use of alcohol, emphasizing the data obtained through the pre-project survey, which assessed alcohol use in project campus' freshmen.

In addition, decisional balance was implemented during these sessions. The students were encouraged to engage in discussion about the advantages and disadvantages of consuming alcohol. To illustrate the advantages of consuming alcohol, the participants viewed video alcohol advertisements. Videos of intoxicated individuals capturing negative, alcohol-related consequences were used to demonstrate the disadvantages of alcohol consumption. Additionally, the secondary effects of alcohol were discussed as disadvantages of drinking. Secondary effects are negative events experienced by individuals who are not drinking caused by those who are intoxicated. With decisional balance, the project leader hoped to create a discrepancy in the thoughts associated with drinking among freshmen. If students explicitly realize that the disadvantages of alcohol consumption outweigh the advantages, then they may be inclined to reduce their drinking as the research supports (LaBrie et at, 2006; LaBrie et at, 2007a; LaBrie et al, 2007b; LaBrie et al, 2008; LaBrie et al, 2009; Moreira et al, 2010; NIAAA, 2002; Valisaki et al, 2006).

The next component implemented at the "maintenance" session strategy was the promotion of substance-free events that occur on the project campus and in the local community. Research supports that awareness and promotion of substance-free events helps reduce alcohol consumption in young adult, college students (Correia et al, 2003; Correia et al, 2005). Additionally, the USDHHS (2007), National Prevention Council (2011), and NIAAA (2002) have developed recommendations concerning the reduction of alcohol use among college students that include making students aware of the existence and enforcement of campus alcohol policies. It was pointed out to students that the "maintenance" session strategy itself is a substance-free event, as "Mocktails" were served and socialization among college

students was promoted. Lastly, the University's alcohol policy was reviewed to re-inform students that the campus is an alcohol-free environment.

During the tenth week of classes, the next strategy implemented was the distribution of "maintenance" e-mail and Twitter messages to the participants. These messages informed the participants of alcohol-free events that took place on the project's campus and in the surrounding community. Websites regarding alcohol-free activities or events taking place on campus or locally were also provided.

During the fifteenth week of classes, the final project strategy involved the distribution of the post-project, web-based survey. An email message was sent to project participants to complete and submit the prost-project survey (see Appendix G). Before participants completed the post-project survey an informed consent was acknowledged electronically. The post-project survey used Zoomerang technology where participants selected answers by simply clicking on responses. Two additional reminders were sent in order to remind the participants to complete and submit the survey by the due date. Participants had until the end of the sixteenth week of classes to submit the post-project survey. Participants submitting the post-intervention survey were enrolled in a random drawing for 10, $10 gift certificates to a local business as an incentive for participation in the project.

Planning

Many stakeholders supported or were involved in the planning and implementation of this EBP project. Select stakeholders included the University's Dean of Students, the Director of the Student Counseling and Development Center, the Coordinator of Office of Drug and Alcohol Education (OADE), the Director of the University Health Center, the Assistant Dean of Residential Services, Residential Learning Coordinators (RLCs), Resident Assistants (RAs), Boosting Alcohol Consciousness Concerning the Health of University Students (BACCHUS) and Greeks Advocating for Mature Management of Alcohol (GAMMA) peer group, nursing research students, CORE faculty, and information technology personnel. Based on the DoI Model the

stakeholders were involved in the knowledge, persuasion, decision, implementation, and confirmation stages. Knowledge about the EBP project was shared in order to persuade these stakeholders to adopt the innovation of developing and implementing an intervention to reduce alcohol consumption in freshmen students. The various stakeholders who supported the planning of this EBP project consisted of the innovators, early adopters, and early majority needed to assist in the adoption of the innovation, as postulated in the decision stage of the DoI (Rogers, 2003). Further communication and collaboration took place with University personnel throughout the project in order to develop a strategy that was feasible and sustainable in the university setting. In regard to the evaluation stage, it was hoped that reduced alcohol consumption resulted in a minimization of experienced negative alcohol-related consequences. Thus, the organization, key stakeholders, as well as campus students who do abstain from consuming alcohol would benefit from the intervention. Some organizational advantages include improved campus safety, maintained student enrollment, and reduced college drop-out rates.

The project leader gained the support of the above aforementioned stakeholders. Extensive consultation and collaboration occurred with the project leader and EBP project advisor regarding the development, implementation, and evaluation of project. The Student Counseling and Developing Center, OADE, and Residential Services staff confirmed the needs and priorities of the University, regarding the implementation of an intervention to reduce alcohol consumption. Additionally, these individuals assisted in the timing, feasibility, and sustainability of the intervention implemented by the project leader.

Approval was sought from the Dean of Students, so that information was released regarding freshmen e-mails in order to be able to contact potential participants and provide reminders, project information, and the post-project survey. Since part of the intervention occurred in residence halls, Residential Services personnel was asked to assist with the promotion of the “maintenance” sessions by providing location and advertisement for this event. RAs and RLCs were contacted to gain the support for the project, specifically to promote

student attendance to the “maintenance” sessions that occurred in the freshmen residence halls. Information technology staff was contacted by the project leader for assistance with the development and distribution of the post-intervention survey using a web-based format.

The project leader became involved with peer groups on campus. The project leader requested to attend meetings of the project campus’ chapter of BACCHUS/GAMMA to obtain this group’s support for the project. BACCHUS/GAMMA is a university and community based network targeting comprehensive health and safety initiatives, including alcohol consumption in college students (The BACCHUS Network, 2011). Furthermore, meetings were held with potential nursing research students who were interested in helping with the conduction of the EBP project. Support of these groups was needed to facilitate distribution of pre-project surveys to students at fall freshmen orientation. In addition, BACCHUS/GAMMA members and nursing students were asked to help with the residence hall “maintenance” session interventions or preparing “Mocktails” at these sessions. Certainly, as peers to the freshmen participants, both nursing students and BACCHUS/GAMMA members promoted freshmen participation in the project, with emphasis placed on “maintenance” session attendance.

Core 5th hour is a mandated class in which all project campus freshmen are enrolled during the first academic year. Core class meets four hours a week, with the fifth hour spent outside of class (Valparaiso University, 2011b). The goal of Core fifth hour is to involve freshmen in the culture of the project campus (Valparaiso University, 2011b). There are a variety of events available for students to attend that can meet the Core 5th hour requirements. The project leader sought Core 5th hour approval from Core faculty personnel. Information about the “maintenance” sessions and how these sessions will facilitate the students’ development of skills, attitudes, and healthy habits that can be used to achieve success in academics and life were provided.

Recruitment of Sample

Prior to the start of the fall semester, college freshmen were recruited at the mandatory freshmen orientation session. During this session, the project leader delivered a brief presentation in order to recruit participants (see Appendix B). The project leader discussed the: (a) purpose of the project, (b) activities in which the students will engage concerning the project, (c) benefits gained by the students through participation, and (d) measures taken to protect the anonymity of the participants. Students interested in participating in the project were instructed to read and sign the consent form (see Appendix C); and complete the initial, pre-project survey (see Appendix D). It took approximately 10 minutes for the participants to complete these tasks.

Protection of Human Subjects

Several essential measures were taken to ensure the protection of individuals participating in this EBP project. The EBP project leader obtained approval through the project campus' Institutional Review Board (IRB). Additionally, the project leader gained approval for project implementation from the Dean of Students. Permission was obtained for the release of e-mail addresses of freshmen students who agreed to participate in the project. The use of the University's e-mail system enabled the project leader to send information concerning the project interventions.

Other measures were used to protect project participants. The students had to be 18 years of age or older to participate in the EBP project. Additionally, each student who voluntarily participated in the project signed or acknowledged a consent form (see Appendices C and E). Each student was informed about the purpose of the project, the multi-component intervention that was to be implemented, benefits gained and potential risks through participation, and measures taken to protect the anonymity of the participants. The potential participants were also informed that they could choose to forego participation at any time during the project and choosing to forego participation would not influence the participants' standing with the University. It was realized by the project leader that when participants generate responses for the pre-project and post-project surveys they may feel uncomfortable reporting behaviors that

violate university policy regarding alcohol consumption. To circumvent this discomfort, participants were informed that all responses were coded and the participants remained unidentifiable. Furthermore, all project materials were kept in a locked file cabinet of the EBP project leader. Lastly, when the project was completed and project results disseminated, all data was destroyed.

CHAPTER 4

FINDINGS

The purpose of this EBP project was to answer the PICOT question: In college freshmen, how does a multi-component intervention influence alcohol consumption over a four month period? Through pre- and post-project surveys, behavioral change was assessed. The pre-project survey was conducted at freshmen orientation before the start of fall semester 2011. This survey assessed self-reported alcohol consumption behaviors, social preferences concerning alcohol, importance and confidence of changing drinking behavior, and negative consequences of alcohol consumption experienced by participants. The web-based post-project survey was conducted during the fifteenth week of fall semester. The post-project survey also assessed the influence of the implemented strategies on changing alcohol consumption behavior.

Collected pre- and post-project data were analyzed using the Statistical Package for the Social Sciences, version 18. Descriptive statistics were initially performed on the participants' demographical data. Measures of central tendency were performed to determine averages of various data. In addition, inferential statistics were performed to determine if any significant changes occurred as a result of participants being exposed to the multi-component intervention to reduce alcohol consumption.

Sample Characteristics

Pre-project participants' demographics. Out of 698 freshmen, 440 (63%) completed the pre-project survey. The demographic characteristics of those completing the pre-project survey are displayed on Table 4.1. The ages of the participants who completed the pre-project survey ranged from 18 to 20 years (M = 18.28 years). The majority of the participants were female (58%) and Caucasian (85%).

Table 4.1

Demographic Characteristics (N = 440)

	Pre-project *n* = 440	Matched *n* = 231			
	n (%)	*n* (%)	X^2	*df*	*p* value
Gender			20.433	1	0.000
Male	183 (42)	82 (35)			
Female	257 (58)	151 (65)			
Race			875.609	5	0.000
Caucasian	373 (85)	207 (89)			
African American	19 (4)	4 (2)			
Asian	17 (4)	4 (2)			
Hispanic	21 (5)	12 (5)			
Pacific Islander	1 (1)	1 (1)			
Native American	0 (0)	0 (0)			
Other	9 (1)	5 (1)			

Preferences of Drinkers and Nondrinkers. Of those participants who reported consuming alcohol (drinkers), it was found that 38% (*n* = 55) strongly agreed or agreed that they would prefer to attend alcohol-free events (see Table 4.2). However, 54% (*n* = 79) of the drinkers were undecided as to whether they preferred to attend alcohol-free events. It was also discovered that the self-identified drinkers, 25% (*n* = 36) either strongly disagreed or disagreed to associate with those who consume alcohol. However, 70% (*n* = 102) of these participants were undecided as to whether they desired to associate with those who consume alcohol. Of those participants who reported abstaining from alcohol prior to coming to campus, it was found that 71% (*n* = 206) strongly agreed or agreed that they would prefer to attend alcohol-free events. Additionally, it was discovered that 55% (*n* = 162) of the self-identified nondrinkers either strongly agreed or agreed to associate with those who consume alcohol.

Table 4.2

Preferences of Drinkers and Non-Drinkers

	Pre-project	Post-project
	n (%)	*n* (%)
Drinkers	(*n* = 146)	(*n* = 98)
Preferences to attend alcohol-free events		
Strongly agree	11 (8)	11 (11)
Agree	44 (30)	18 (18)
Undecided	79 (54)	57 (58)
Disagree	12 (8)	9 (10)
Strongly disagree	0 (0)	3 (3)
Preference to associate with those who drink		
Strongly agree	0(0)	1 (1)
Agree	8 (5)	5 (5)
Undecided	102 (70)	59 (60)
Disagree	35 (24)	28 (29)
Strongly disagree	1 (1)	5 (5)
Nondrinkers	(*n* =294)	(*n* = 135)
Preferences to attend alcohol-free events		
Strongly agree	119 (41)	70 (52)
Agree	87 (30)	39 (29)
Undecided	78 (25)	23 (17)
Disagree	8 (3)	2 (1)
Strongly disagree	2 (1)	1 (1)
Preference to associate with those who drink		
Strongly agree	100 (34)	0 (0)
Agree	62 (21)	5 (4)
Undecided	76 (26)	51 (38)
Disagree	35 (12)	42 (31)
Strongly disagree	21 (7)	37 (27)

Pre-project drinkers. The self-reported alcohol consumption behaviors of the drinkers are depicted in Table 4.3. The overall alcohol consumption rate for the pre-project participants was found to be 33% (*n* = 146). Seventy-three percent (*n* = 106) of these participants drank monthly or less, with 23% (*n* = 34) consuming alcohol two to four times a month. With respect to

the number of drinks consumed at each drinking episode, 52% (*n* = 76) consumed one to two drinks and 27% (*n* = 40) consumed three to four drinks.

Table 4.3

Alcohol Consumption Behaviors of Pre-project Drinkers (n = 146)

Variable	*n* (%)
Frequency of drinking	
Monthly or less	106 (73)
2-4 times a month	34 (23)
2-3 times a week	4 (3)
4 or more times a week	2 (1)
Quantity of drinks consumed at each drinking episode	
1-2	76 (52)
3-4	40 (27)
5-6	23 (16)
7-9	3 (2)
10 or more	4 (3)

Comparison of pre-project self-identified drinkers and non-drinkers. It was discovered that 67% (*n* = 294) of the pre-project participants indicated that they had never consumed alcohol prior to coming to campus. Analysis revealed that 57% (*n* = 168) of the non-drinkers were female and 88% (*n* = 259) were Caucasian (see Table 4.4). Of those participants who indicated that they had previously consumed alcohol, 61% (*n* = 89) were female and 78% (*n* = 114) were Caucasian. A chi-square statistical test was performed to determine if there were significant differences between the demographic characteristics of drinkers and non-drinkers. Concerning the gender and ethnicity of self-identified drinkers, there was a significant, larger number of females (X^2 (1) = 20.433, p = 0.000) and Caucasians (X^2 (5) = 875.609 , p = 0.000) who completed the pre-project survey.

Matched-group demographics. Matched group participants were those freshmen who completed both the pre-project and post-project surveys (*n* = 233). The follow-up rate for the pre-project survey was 53%. The demographic characteristics of the matched group participants are displayed in Table 4.1. The majority of the matched group participants were nondrinkers (67%), female (65%), and Caucasian (89%).

Matched-group preferences. Of the drinkers, it was found that 29% (*n* = 29) strongly agreed or agreed that they would prefer to attend alcohol-free events (see Table 4.2). However, 58% (*n* = 57) of the drinkers were undecided as to whether they wanted to attend alcohol-free events. It was also discovered that 60% (*n* = 59) of the drinkers were undecided whether they desired to associate with those who consume alcohol. Additionally, 34% (*n* = 33) of the drinkers either strongly disagreed or disagreed to associate with those who consume alcohol. Of the nondrinkers, it was found that 81% (*n* = 109) strongly agreed or agreed that they would prefer to attend alcohol-free events. Additionally, it was discovered that 58% (*n* = 79) either strongly disagreed or disagreed to associate with those who consume alcohol.

Table 4.4

Pre-project Demographic Characteristics and Drinking Status (n = 440)

	Non-drinker *n* = 294	Drinker *n* = 146			
	n (%)	*n* (%)	X^2	*df*	*p* value
Gender			6.898	1	0.0009
Male	126 (43)	57(39)			
Female	168 (57)	89 (61)			
Race			337.796	5	0.000
Caucasian	259 (88)	114 (78)			
African American	11 (4)	8 (6)			
Asian	10 (3)	7 (5)			
Hispanic	8 (3)	13 (9)			
Pacific Islander	6 (2)	1 (1)			
Native American	0 (0)	0 (0)			
Other	6 (2)	3 (2)			

Pre-project alcohol consumption of participants' friends. Participants reported that 76% (*n* = 111) of their friends consumed alcohol at least two to four times each week (see Table 4.5). Additionally, 59% (*n* = 86) of the self-identified drinkers' friends consumed at least three to four drinks at each drinking episode. It was reported by the nondrinkers that 42% (*n* = 125) of their friends had never consumed alcohol, while 33% (*n* = 96) consumed alcohol monthly or less. The nondrinkers also reported that those friends who did consume alcohol 90% (*n* = 266) consumed at least three to four drinks at each drinking episode.

Table 4.5

Pre-Project Alcohol Consumption Behavior of Pre-Project Participants' Friends

Variable	*n* (%)
Drinkers	146
Frequency of alcohol consumption of friends	
Never	8 (6)
Monthly or less	54 (37)
2-4 times a month	57 (39)
2-3 times a week	22 (15)
4 or more times a week	5 (3)
Quantity of drinks consumed at each drinking episode	
1-2	37(25)
3-4	49 (34)
5-6	27 (18)
7-9	19 (13)
10 or more	14 (10)
Nondrinkers	294
Frequency of alcohol consumption of friends	
Never	125 (42)
Monthly of less	96 (33)
2-4 times a month	55 (19)
2-3 times a week	16 (5)
4 or more times a week	2 (1)
Quantity of drinks consumed at each drinking episode	
1-2	209 (71)
3-4	57 (19)
5-6	20 (7)
7-9	7 (2)
10 or more	1 (1)

Changes in outcomes

Statistical testing. Inferential statistics were performed to determine if any significant changes occurred as a result of participants being exposed to the multi-component intervention to reduce alcohol consumption. As illustrated in Table 4.6, the variables measured included (a)

alcohol consumption behavior; (b) the importance and confidence in changing alcohol consumption behavior, and (c) negative, alcohol-related consequences experienced by self-identified drinkers.

Alcohol consumption behavior. Paired *t*-tests were used to compare the means of the self-identified pre-and post-project drinking behaviors. With respect to the frequency of alcohol consumption behavior, the pre-project mean was 2.33 and the post-project mean was 2.84. A statistical significant increase from the mean pre-project drinking frequency to the mean post-project drinking frequency was found ($t(97) = 6.522$, $p = 0.000$). Concerning the quantity of alcohol consumed at a single episode of drinking, the pre-project mean was 1.77 and the post-project mean was 2.11. A statistical significant increase from the mean pre-project quantity of alcohol consumed to the mean post-project quantity of alcohol consumed was found ($t(97) = 2.999$, $p = 0.003$). Concerning the consumption of six or more drinks at a single episode of drinking, the pre-project mean was 1.51 and the post-project mean was 1.73. A statistical significant increase from the pre-project mean to the post-project mean was found ($t(97) = 2.201$, $p = 0.030$).

Changing alcohol consumption behavior. The project leader used the Transtheoretical Model of Change (TTM) as a framework for the EBP project. The importance and confidence of the self-identified drinkers in changing their alcohol consumption behavior was measured. Paired *t*-tests were conducted to compare the mean pre-project change ruler scores to the mean post-project change ruler scores for those who continued to drink ($n = 67$). Concerning importance in changing behavior, the mean pre-project score was 2.17 and the mean post-project score was 3.46, indicating a statistically significant, positive difference ($t(97) = 5.130$, $p = 0.000$). With respect to confidence in changing behavior, the mean pre-project score was 8.43 and the mean post-project score was 9.40. A statistically significant increase was found in relation to confidence in changing alcohol consumption behavior ($t(97) = 9.559$, $p = 0.000$).

Alcohol-related consequences. The reliability was calculated for this portion of the pre- and post-project surveys that asked twelve questions regarding negative alcohol-related consequences that participants experienced. By calculating Cronbach's alpha, the reliability for the negative, alcohol-related consequence section of the pre-and post-project surveys was 0.843. The minimum and maximum score for these 12 questions relating to the negative, alcohol-related consequences was 12 and 48, respectively. Paired *t*-tests were then performed to compare the mean pre-project consequence score to the mean post-project score for those who continued to drink (*n* = 67). The mean pre-project score was 13.19 and the mean pro-project score was 13.09, which indicated that there was no statistically significant difference between the pre- and post-project consequence scores (*t*(97) = -0.421, *p* = 0.675).

Table 4.6

Drinkers' Behavior, Change, & Consequences (*n* = 233)

Variable	Pre-project M (SD)	Post-project M (SD)	*t*	*df*	*p* value
Alcohol consumption behavior					
Frequency	2.33 (0.600)	2.84 (0.769)	6.522	97	0.000
Quantity	1.77 (0.980)	2.11 (1.130)	2.999	97	0.003
Consuming 6+ drinks during a single episode	1.51 (0.819)	1.73 (1.011)	2.201	97	0.030
Change					
Importance of changing drinking behavior	2.17 (2.492)	3.46 (2.488)	5.130	97	0.000
Confidence of changing drinking behavior	8.43 (2.596)	9.40 (1.002)	9.559	97	0.000
Consequences	13.19 (2.792)	13.09 (2.319)	-0.421	97	0.675

Preferences. Paired *t*-tests were performed to compare the mean pre-project social preferences to the mean post-project social preferences (see Table 4.7). With respect to the drinkers' preference for attending alcohol-free events, the pre-project mean was 2.63 and the

post-project mean was 2.76, indicating a statistical significant increase from pre-project mean to the post-project mean ($t(97) = 1.495$, $p = 0.138$). Concerning these participants' preference to associate with individuals who consume alcohol, the pre-project mean was 3.20 and the post-project mean was 3.32. There was a statistically significant increase when comparing the means of associating with individuals who consume alcohol ($t(97) = 1.651$, $p = 0.102$).

With respect to nondrinkers' preference for attending alcohol-free events, the pre-project mean was 3.69 and the post-project mean was 1.70, indicating a statistical significant decrease from pre-project mean to the post-project mean ($t(134) = -26.966$, $p = 0.000$). Concerning these participants' preference to associate with individuals who consume alcohol, the pre-project mean was 1.94 and the post-project mean was 3.82. There was a statistically significant increase when comparing the means of associating with individuals who consume alcohol ($t(134) = 24.856$, $p = 0.000$).

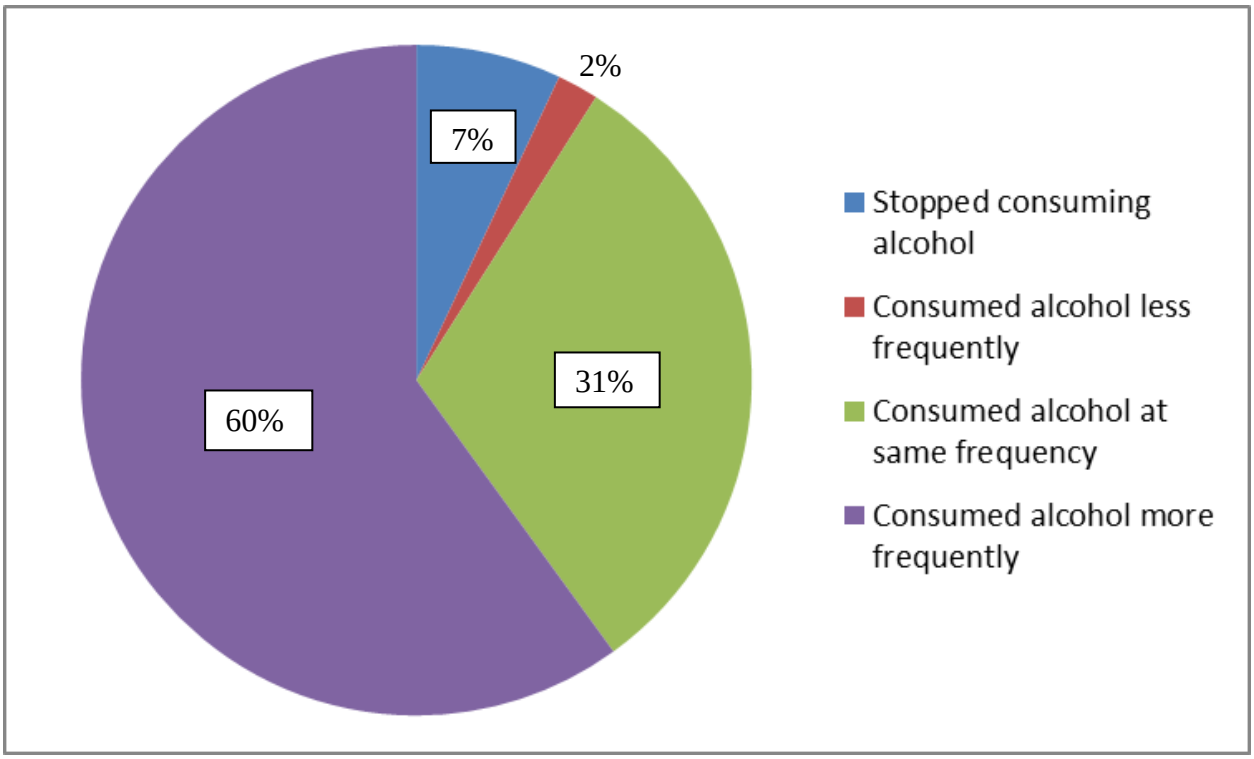
Table 4.7

Drinkers' and Nondrinkers' Preferences

Variable	Pre-project M (SD)	Post-project M (SD)	*t*	*df*	*p* value
Drinkers' preferences					
Attending alcohol-free events	2.63 (0.743)	2.76 (0.875)	1.495	97	0.138
Association with individuals who consume alcohol	3.20 (0.533)	3.32 (0.698)	1.651	97	0.102
Nondrinkers' preferences					
Attending alcohol-free events	3.69 (0881)	1.70 (0.856)	-26.966	134	0.000
Association with individuals who consume alcohol	1.94 (0.916)	3.82 (0.880)	24.856	134	0.000

Drinking status. Of the 146 pre-project participants who were self-identified drinkers, 54% (*n* = 79) were lost to follow-up. For those drinkers who completed both the pre- and post-project surveys (n = 67), 7% (*n* = 5) reported that they stopped drinking, 2% (*n* = 1) reported that they drank less frequently, 31% (*n* = 21) drank at the same frequency, and 60% (*n* = 40) reported that they drank more frequently, (See Figure 4.1). All matched participants (*n* = 233) were exposed to freshmen orientation, e-mails, or residence hall "maintenance" sessions. Thirty-one post-project participants (13%) indicated that they started drinking since arriving to the project campus.

Figure 4.1 Post-Project Drinking Status of Pre-Project Drinkers (*n* = 67)



Influence of strategies. All matched participants (*n* = 233) were exposed to either freshmen orientation, e-mail messages, and/or residence hall "maintenance" sessions (see Table 4.7). The post-project self-identified drinkers (*n* = 98) and non-drinkers (*n* = 135) rated how each strategy influenced their alcohol consumption behavior. With respect to freshmen

orientation, 52% (*n* = 51) of the post-project self-identified drinkers indicated that this strategy had a positive influence on their behavior (see Figure 4.2). Of those self-identified drinkers who received e-mail messages, 39% (*n*= 22) indicated that this strategy positively affected their drinking behavior. Of those self-identified drinkers who attended the "maintenance" sessions, 73% (*n* = 16) indicated that this strategy had a positive influence on their drinking behavior. However, none of the self-identified drinkers received Twitter messages.

Concerning the post-project self-identified non-drinkers, 52% (*n* = 70) indicated that freshmen orientation positively affected their decision to continue abstaining from alcohol. Of the self-identified non-drinkers who received e-mails, 48% (*n* = 29) indicated that this strategy affected their decision to remain alcohol-free. Of the self-identified non-drinkers who attended the "maintenance" sessions, 61% (*n* = 11) indicated that this strategy had a positive influence on alcohol abstinence (see Figure 4.3). Only one self-identified non-drinker received the Twitter messages and indicated that this strategy had a mild positive influence on the decision to remain alcohol-free.

Influence of strategies: Residence hall "maintenance" sessions. Seventy students participated in the residence hall "maintenance" sessions (see Table 4.8). Ninety-seven percent (*n* = 68) indicated that they attended the session to obtain Core 5th hour credit and 26% (*n* = 18) attended because they were interested in the topic of reducing alcohol consumption. Fifty percent (*n* = 35) of the participants consumed alcohol, while 50% (*n* = 35) abstained from alcohol consumption. Forty-seven percent (*n* = 33) reported that they either strongly agreed or agreed that the sessions would impact their future alcohol consumption. In addition, 44% (*n* = 31) either strongly agreed or agreed that the sessions would help them remain alcohol-free.

Figure 4.2 Effect of Strategies on Drinkers (*n* = 98)

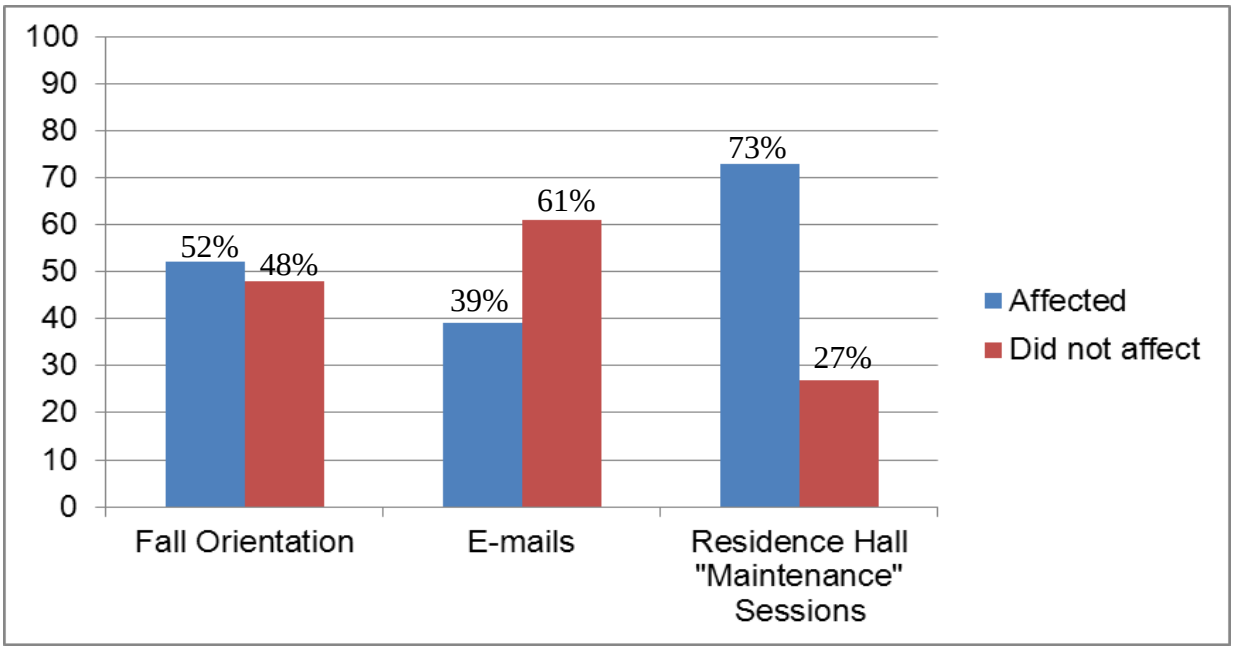


Figure 4.3 Effect of Strategies on Nondrinkers (*n* = 135)

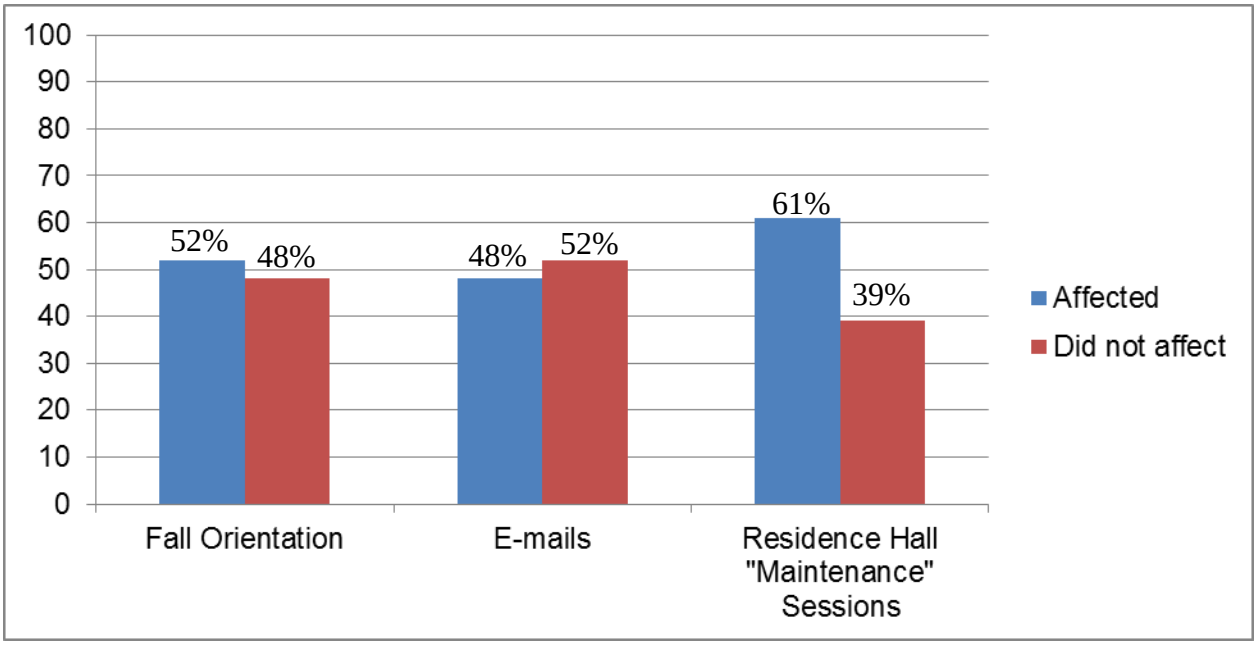


Table 4.8

Resident Hall "Maintenance" Session Statistics (*n* = 70)

Sessions		1	2	Total *n*(%)
Attendance		43	27	70
Attendance factors	Core 5th Hour Credit	41	27	68 (97)
	Mocktails	7	1	8 (11)
	Interested in topic	10	8	18 (26)
	Bored	6	2	8 (11)
	Friend encouragement	9	6	15 (21)
	RAs/RLCs encouragement	5	9	14 (20)
	Food	2	1	3 (4)
Session impacting future alcohol consumption	Strongly agree	3	2	5 (7)
	Agree	14	14	28 (40)
	Undecided	18	18	27 (38)
	Disagree	6	6	7 (10)
	Strongly disagree	3	3	3 (4)
Session helping participant remain alcohol-free	Strongly agree	4	2	7 (10)
	Agree	10	14	24 (34)
	Undecided	10	15	25 (36)
	Disagree	3	3	12 (17)
	Strongly disagree	0	2	2 (4)

CHAPTER 5

DISCUSSION

This EBP project implemented a multi-component intervention to reduce alcohol consumption in college students. The project intervention consisted of brief intervention, the promotion of alcohol-free events, and reinforcement of campus alcohol policy. Data collected using pre- and post-project surveys were analyzed. Findings were explained based on data analysis.

Explanation of Findings

Alcohol consumption. Based on the statistical tests performed, there was a significant increase ($t(97) = 6.522$, $p = 0.000$) in the frequency of alcohol consumption by the participants in this EBP project. This increase is a result of pre-project drinkers actually increasing their frequency of alcohol consumption from the beginning of the project and pre-project non-drinkers becoming drinkers. There are many explanations for this increase in alcohol consumption behavior of the EBP project's participants. Croom and colleagues (2008) noted that freshmen are particularly vulnerable to the misuse of alcohol after arriving to campus and are easily tempted to use alcohol because they are away from home and lack parental supervision. Freshmen also desire social acceptance from peers, perceive that consuming alcohol can assist with being accepted, and distort perceptions regarding peer use and abuse of alcohol (Croom et al, 2008). The increase in alcohol consumption is contradictory to the research findings used as best evidence for this EBP project. Indeed, studies have shown that brief intervention, the promotion of alcohol-free events, and the reinforcement of campus actual policy are effective in reducing alcohol consumption in college students (Moreia et al, 2010; Vasilaki et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2008; LaBrie et al, 2009; LaBrie et al, 2006; LaBrie et al, 2007b; LaBrie et al, 2011; Henslee & Correia, 2009; Correia, 2005; Riley & Wood, 2008; Turner et al, 2008; NIAAA, 2002; USDHHS, 2007; National Prevention Council, 2011).

Changing behavior. It was found that there was a significant increase in the confidence and importance to change alcohol consumption behavior by those participants who continued to consume alcohol. This finding supports the premise that the multi-component intervention was successful in increasing the motivation to change alcohol consumption behavior. Prochaska and DiClemente (1983) discuss that desiring change needs to occur before behavior change actually results. An individual's readiness to reduce alcohol consumption can be predicted using the degree of importance and confidence that he or she has in changing the behavior (Harris, Walters, & Leahy, 2008). Since there were increases in confidence and importance, this foreshadows possible future decreased alcohol consumption in drinkers.

Preferences. At post-project, more drinkers were undecided as to whether they preferred to attend alcohol-free events or associate with individuals who consumed alcohol, demonstrating a statistically significant change ($t(97) = 1.495$, $p = 0.138$). This result suggests that drinkers do not necessarily need to seek social events where alcohol is involved. There was a significant increase in those preferring to spend time with other drinkers ($t(97) = 1.651$, $p = 0.102$), indicating that more drinkers agreed rather than strongly agreed to associate with other drinkers. This suggests that drinkers do not necessarily desire other drinkers' company from a social perspective. Individuals choosing to socialize with those who consume alcohol can impact the perceptions of alcohol use, where misperceptions are corrected (Reilly & Wood, 2008). Additionally, as noted by Croom and Colleagues (2008), freshmen desire social acceptance from peers and perceive that consuming alcohol can assist with being accepted.

The majority of non-drinkers reported preferring to attend alcohol-free events on both the pre- and post-project survey. There was actually a significant decrease ($t(134) = -26.966$, $p = 0.000$), which suggests that nondrinkers value environments void of alcohol. Additionally, concerning nondrinkers' preference of associating with individuals who consume alcohol, there was a significant increase ($t(134) = 24.856$, $p = 0.000$). At the beginning of the project, nondrinkers preferred to associate with individuals engaging in alcohol consumption. However,

at the end of the project, nondrinkers did not prefer to associate with individuals who consumed alcohol. This change suggests that nondrinkers socially desired to be involved with other nondrinkers rather than drinkers. The USDHHS (2007) and NIAAA (2002) discuss environmental strategies to reduce alcohol consumption in college students, which include association preferences. Changing the nondrinkers' preference to associate with other nondrinkers helps promote an alcohol-free environment.

Consequences. There was no statistically significant change in negative, alcohol-related consequences experienced by drinkers ($t(97) = -0.421$, $p = 0.675$). The average score on the pre-project survey (M = 13.19) and post-project survey (M = 13.09) was relatively low, indicating that the drinkers did not experience the sequelae of alcohol consumption before or after intervention implementation. The low score could account for the lack of significance in the negative, alcohol-related consequences experienced by participants. Fortunately, this indicates that those college students who consume alcohol are not putting their safety or others' safety at risk. In addition, the drinkers indicated that they are still able to achieve academic success despite their behavior. The lack of a significant decrease is reverse of finding in other research studies that evaluated negative, alcohol-related consequences. Most of research used as best evidence for this EBP project found significant decreases in alcohol-related consequences after exposure to the intervention (LaBrie et al, 2008; LaBrie et al, 2006; LaBrie et al, 2007b; LaBrie et al, 2011; Turner et al, 2008).

Evaluation of the Applicability of the Theoretical Frameworks

The Transtheoretical Model of Health Behavior Change (TTM) and the Diffusion of Innovation (DoI) were used as the frameworks to guide this EBP project. Both of these frameworks were evaluated based on their applicability in the project.

Transtheoretical Model of Health Behavior Change. The TTM includes the stages of pre-contemplation, contemplation, preparation, action, maintenance, and termination. This model postulates that motivation to change a behavior needs to occur before actual change in a

behavior takes place (Prochaska & DiClemente, 1983). Based on the data collected, it is supposed that most of the drinkers were contemplative, as readiness to change increased, which was indicated by increased confidence and importance in changing alcohol consumption behavior. Contemplation is the stage where persons realize the existence of some risks or problems in relation to a given behavior (Prochaska & DiClemente, 1986). Individuals consider making behavior modifications, but currently are not committed to change. Additionally, contemplative individuals are ambivalent toward making a behavioral change. Increased readiness to change before actual reductions in alcohol consumption occur was found in several research studies used as best evidence for this project (Henslee & Correia, 2009; LaBrie et al, 2007a; LaBrie et al, 2006).

Dimeff and colleagues (1999) found that college students could be at various stages of TTM in relation to alcohol consumption. College students who consume alcohol that are in the contemplation stage recognize the maladaptive aspects of alcohol use (Dimeff et at, 1999). Additionally, these students may vacillate between changing and resisting change. In the contemplation stage, drinking college students may struggle with their positive alcohol-related experiences and the amount of effort, energy, and loss it will take to overcome the behavior.

Since the supposition was made that most of the participants who continued to consume alcohol were in the contemplation stage, during the project these participants engaged in the change processes of consciousness raising, dramatic relief, and environmental reevaluation to transition from pre-contemplation to contemplation. With respect to consciousness raising, the drinkers were exposed to new facts and ideas that reinforced decreasing alcohol consumption. At fall freshmen orientation and in “maintenance” e-mail messages, information regarding the alcohol-free campus policy was communicated to participants. Furthermore, in the residence hall “maintenance” sessions, new information was conveyed to participants through discussions about unfavorable consequences resulting from consuming alcohol and increased knowledge relating to eBAC education. Additional information was conveyed concerning actual alcohol

consumption statistics to correct misperceptions that drinkers have regarding this behavior. With dramatic relief, the drinkers learned of negative emotions experienced by individuals who consume alcohol. These emotions are linked to the untoward, alcohol-related consequences (e.g. missing classes, assault, arguments, etc.) resulting from alcohol consumption. Concerning environmental reevaluation, drinkers considered the negative influence of alcohol consumption in the campus environment.

The concepts of decisional balance, self-efficacy, and temptation are included in the TTM. Decisional balance involves the advantages and disadvantages of behavior change (Prochaska & DiClemente, 1983). The concept of decisional balance was woven into the EBP project, as participants attending residence hall “maintenance” sessions engaged in an activity where they identified advantages and disadvantages of consuming alcohol. Since the drinkers were contemplative, they began to appreciate cons rather than the pros of alcohol consumption. Self-efficacy involves the confidence that individuals possess and use to participate in healthy behaviors (Prochaska & Velicer, 1997). Based on the results of the project, there was an increase in the confidence associated with changing alcohol consumption behavior as previously mentioned. Drinkers who actually reduce alcohol consumption will use this increased confidence to prevent relapse. If a drinker’s confidence is threatened, however, temptation may dominate and the drinker may partake in alcohol consumption in challenging circumstances.

Diffusions of Innovations. The DoI includes the stages of knowledge, persuasion, decision, implementation, and confirmation. During the knowledge stage of this project, the best evidence for reducing alcohol consumption in college students was identified by the project leader. The current evidence was shared with key stakeholders of the University including personnel associated with Counseling Services, Student Health Center, Residential Life, and Core 5th Hour. All key stakeholders agreed that an intervention to reduce alcohol consumption by freshmen students should be implemented on the project campus. Residential Life staff was also instrumental in assisting in the timing of the intervention strategies proposed by the project

leader, as it was recommended that the residence hall “maintenance” session should occur around Homecoming, Fall Break, or mid-term examinations. Residential Life staff identified these events, since they mark increased periods of stress in the lives of college freshmen, where they may choose alcohol consumption as a coping mechanism. Knowledge about the best evidence was shared with RAs and RLCs, as they facilitated in planning for the residence hall “maintenance” sessions. Lastly, Core 5th Hour faculty became aware of the intervention, so that support was obtained from this University entity. With this support, Core 5th Hour credit could be awarded to participants for attending the sessions and thus increasing the number of participants.

Concerning persuasion stage, favorable attitudes toward the innovation were developed among key stakeholders and project participants. With knowledge sharing and intervention planning, key stakeholders developed positive attitudes toward the intervention to reduce alcohol consumption in college freshmen. The response rate of those participating in the EBP project were 63% (*n* = 440) and 33% (*n* = 233) on pre- and post-project surveys, respectively. Based on these percentages, the project leader concluded that many freshmen had developed favorable attitudes toward participating in the innovation.

Relative advantage, compatibility, complexity, trialability, and observability were considered by the project leader when college freshmen and project campus staff were persuaded to develop a favorable attitude to the innovation. Concerning relative advantage, the intervention added to existing strategies to reduce or prevent alcohol consumption on the project campus. Since support for the intervention implementation was gained from the University’s key stakeholders, compatibility thus increased. The innovation is consistent with values, past experiences, and needs of University staff. Decreased complexity facilitated the persuasion of key stakeholders, especially University staff, since the intervention was easily comprehended and feasible. Since the EBP project served as a pilot for sustained implementation of the intervention the concept of trialbility of the intervention was accomplished.

Given that project outcomes were easily assessed through pre- and post-project surveys, observability was also attained.

Pertaining to the decision stage of DoI, adoption of the innovation took place. The key stakeholders of the University consisted of the innovator and early adopters that made up the critical mass to adopt the innovation. The innovator was the project leader and the early adopters included the University's Dean of Students and staff from Residential Services, Student Counseling and Development Center, Health Center, BACCHUS/GAMMA peer group, nursing research students, and CORE faculty. Throughout the implementation stage, the project leader was enabled by University staff to develop an intervention to reduce or prevent alcohol consumption in college freshmen. As previously discussed, the University staff assisted the project leader in the planning and timing of intervention implementation. Furthermore, select University staff (e.g. RAs, RLCs, nursing research students, and BACCHUS/GAMMA members) assisted the project leader in the actual implementation the intervention at the residence hall "maintenance" sessions.

During the confirmation stage, the results of the innovation were evaluated. Conducting pre- and post-project surveys allowed the project leader to determine the success of the EBP project in relation to the effectiveness of the intervention implemented. The post-project survey also allowed the project leader to determine the effectiveness of each component of the intervention. Based on the results, the project leader could make conclusions and future recommendations regarding implementation of the intervention. Additionally, key stakeholders could formulate a decision about permanently adopting the intervention to be implemented in the future.

Strengths and Limitations of the EBP Project

There were several noteworthy strengths and limitations of this EBP project. The strengths and limitations involved the literature used, planning, data collection methods, and implementation of the multi-component intervention.

Evaluation of intervention implementation. The project leader evaluated the EBP project as the intervention was being implemented in fall freshmen orientation, emails and Twitter messages, and residence hall “maintenance” sessions. Assessing the participants’ alcohol consumption and perceptions of peer behavior at fall freshmen orientation set the tone for the event regarding alcohol education. The pre-project survey prefaced the orientation session, which increased student awareness of the alcohol-free alcohol policy and sequalae of alcohol consumption. The pre-project survey assessed alcohol consumption, social preferences associated with alcohol consumption, importance and confidence in changing alcohol consumption, and negative, alcohol-related consequences experienced by college students who consume alcohol. Additionally, the pre-project survey was successfully distributed and re-collected by the project leader, nursing research students, and members of BACCHUS/GAMMA. The time allotted for the project leader to recruit freshmen students to participate in the EBP project was adequate. Regarding limitations of fall freshmen orientation, there was lack of cohesion between EBP project and orientation, in general. If references had been made about the EBP project throughout orientation, there may have been an increased number of signed consents and completed surveys.

There were several identified strengths of the e-mails and Twitter messages sent to project participants. E-mails and Twitter messages provided the participants with information concerning normative feedback and the alcohol-free events occurring campus-wide and in the local community. Pre-project survey data collected during fall freshmen orientation served as the foundation for normative feedback messages. The e-mail and Twitter messages provided a convenient, cost-effective to convey information to all participants. The project leader included herself as a recipient of the emails and Twitter messages, serving to ensure that all messages were delivered to participants. Although the project leader was aware that participants received emails and Twitters, she was unaware of which participants actually opened and read the messages. Despite the use of Twitter in this highly social population, only one nondrinker

project participant received any of the three Twitter messages. Unfortunately, no drinkers received any of the Twitter messages.

The residence hall “maintenance” sessions were essential events in the EBP project, as several EBP project components were implemented at these sessions. With respect to strengths, both sessions were well-attended by participants. The project leader was able to implement normative feedback, as participants’ pre-project perceptions regarding number of drinks consumed at an average party were corrected. With respect to eBAC education, the participants learned that individuals can become quickly intoxicated if a given number of alcoholic beverages are consumed during a given time frame. The participants easily delineated the advantages and disadvantages of alcohol consumption, based on the decisional balance activity conducted. At these sessions, the participants also became aware of the alcohol-free events that are offered on the project campus and surrounding locale. In addition, these sessions were excellent opportunities to remind the participants of the campus alcohol policy. The “maintenance” sessions were opportunities for the intervention to be implemented in a group-format, which enhanced feasibility of the project. Several researchers who implemented brief intervention in groups of college students had success in decreasing alcohol-related consequences (Henslee & Correia, 2009; LaBrie et al, 2007a; LaBrie et al, 2008; LaBrie et al, 2006; LaBrie et al, 2007b; LaBrie et al, 2011; Reilly & Wood, 2008; Turner et al, 2008).

Overall strengths. At its foundation, this EBP project was supported with robust literature. Most of the evidence was rated at Level I or II. In addition, several well-respected national entities support the need to reduce alcohol consumption in college students and provide interventions to accomplish this task. Having strong evidence was key to the success of EBP intervention implementation.

Throughout the EBP project, the project leader effectively communicated with all key stakeholders. Effective communication was required, so that needs concerning alcohol consumption behavior in college students were identified. High-quality communication by the

project leader was also necessary in order to coordinate events with the key stakeholders and implement the multi-component intervention. Specific to planning, the most opportune time for the components of the intervention to be implemented was determined. The EBP project was implemented during the first semester of classes for freshmen, which is the most crucial time to intervene with respect to reducing or preventing alcohol consumption behaviors, according to Croom and colleagues (2008). Additionally, as previously mentioned, University staff was instrumental in assisting with the timing of implementation of the residence hall "maintenance" events. Opportunities for implementation of these sessions centered around campus social events or potential periods of high stress that influence the students' temptation to use alcohol.

The goal of reducing alcohol consumption and promoting alcohol abstinence was a substantial undertaking. Regardless of the EBP project's results, the project leader was able to implement the intervention in an organized fashion without inconveniences or disturbances to the campus community.

The actual results of the EBP project were also identified as strengths. Even though there was an increase in the drinkers' consumption of alcohol, there was also an increase in the confidence and importance in changing alcohol consumption behavior. Since there were improvements in confidence and importance, this foreshadows possible future decreased alcohol consumption in drinkers.

Overall limitations. Several limitations of the EBP project must be mentioned. With respect to data collection, the project leader relied on self-reports of the participants regarding the frequency and quantity of alcohol consumption. Self-reporting limits the EBP project results because it was unknown whether the participants actually reported accurately their alcohol consumption behavior. However, it would be impossible for the project leader and nursing research assistants to monitor the frequency and quantity of alcohol consumption, as there are multiple different locations and occasions which college students can potentially engage in alcohol consumption. Self-reporting was also seen as a limitation in studies conducted with

respect to college students' alcohol consumption (Henslee & Correia, 2009; LaBrie et al, 2007a; LaBrie et al, 2008; LaBrie et al, 2006; LaBrie et al, 2007b; LaBrie et al, 2011; Turner et al, 2008).

Another limitation concerns the actual implementation of multi-component intervention, specifically the resident hall "maintenance" sessions. Many post-project participants rated that these sessions positively influenced their decision to reduce alcohol consumption or remain alcohol-free. However, there were different components implemented in each of the sessions including brief intervention, the promotion of alcohol-free events, and campus alcohol-policy review. Therefore, it was unable to be determined if one component rather than another contributed to the overall positive influence of the sessions on reducing alcohol consumption or abstaining from alcohol. Analyzing individual components of the intervention may reveal that one component is more effective in increasing the confidence and importance of changing alcohol consumption behavior. Lacking the ability to discern specific efficacious components of brief intervention was considered a weakness in other research studies involving the alcohol consumption in college students (LaBrie et al, 2007a; LaBrie et al, 2008; LaBrie et al, 2006; LaBrie et al, 2007b; LaBrie et al, 2009; LaBrie et al, 2011).

The exclusion of upper classmen can also be considered a limitation. Sources revealed that alcohol consumption is a dilemma on most college campuses in the U. S. (SAMHSA, 2010; NIAAA, 2006; Wechsler et al, 2002; Wechsler et al, 2008). However, because there were constraints to accessing this larger population of college students on the project campus, only freshmen were used as the target population for this project. Fall freshmen orientation provided an excellent means of accessing a large portion of incoming students. In addition, events or occasions occurring at the beginning of the academic year were deficient in order to access students from various academic levels.

Another limitation of the EBP project was time. The EBP project was conducted over 15 weeks. The results of the intervention show that the participants' confidence and importance of

changing alcohol consumption increased. However, Prochaska and DiClemente (1983) postulated that before individuals actually change a behavior, they must have motivation to change. Thus, if the EBP project had been conducted over a longer period, an eventual decrease in alcohol consumption may result. The duration of the studies used as best evidence ranged from five weeks to six years (Henslee & Correia, 2009; LaBrie et al, 2007a; LaBrie et al, 2008; LaBrie et al, 2006; LaBrie et al, 2007b; LaBrie et al, 2011; Turner et al, 2008). With respect to the TTM, contemplative persons have the intention to act towards changing typically within six months, which also supports the need to lengthen the time frame of the EBP project. With additional time, a decreasing trend of alcohol consumption among college students may occur.

The demographic make-up of the pre-project participants may be considered a limitation of this EBP project, as they are considered confounding variables. Confounding variables are factors that negatively influence the relationship between the independent and dependent variables (Schmidt & Brown, 2009). Alcohol consumption status, ethnicity, and gender of the participants are aspects that could have confounding influences on the outcomes of alcohol consumption, confidence and importance in reducing alcohol consumption, and alcohol-related consequences. The majority of pre-project participants were female, Caucasian, and abstained from consuming alcohol. Another consideration for the small number of drinkers who completed the pre- and post-project surveys could be due to the fact that non-participating drinkers lacked interest in addressing their personal alcohol consumption or they were in denial, choosing not to admit to consuming alcohol.

Implications for the Future

Based on the findings from this EBP project, a discussion regarding the implications for practice, theory, research, and education follows.

Practice. Several recommendations can be made based on the results of this EBP project. Since the participants believed that fall freshmen orientation and residence hall

“maintenance” sessions were most effective in influencing the decision to reduce alcohol consumption or maintain alcohol abstinence, it is recommended that these events continue to occur. Through assessing reported alcohol consumption at fall freshmen orientation, freshmen were made aware of the frequency and quantity of alcohol consumption. In addition, freshmen engaged in various strategies during residence hall “maintenance” sessions, which increased their confidence and importance in changing alcohol consumption behavior. Although e-mail and Twitter messages did not affect the participants as much as fall freshman orientation and the “maintenance”” sessions, these messages should still be sent. However, different ways to implement e-mail and Twitter messages need to be devised to impact participants in relation to reducing alcohol consumption behavior or promoting alcohol abstinence. Furthermore, it is recommended that fall freshmen orientation and residence hall “maintenance” sessions be implemented during the entire freshmen year. Extended implementation of the intervention will encompass the approximate six months postulated by the TTM to transition the drinkers from the contemplation stage to advanced stages of preparation and ultimately action (Prochaska & DiClemente, 1983). Implementing the intervention throughout the freshmen year could also maintain and reinforce the confidence and importance of changing the behavior thus potentially reducing alcohol consumption, and thereby achieving the ultimate goal. With respect to the confirmation stage of the DoI, it is hoped that key stakeholders, specifically the university’s Counseling Services and Residential Life personnel, will adopt this intervention long term.

There are other implications that can be made, based on the some of the successes of this EBP project. Other academic institutions might adopt similar group interventions with freshmen to assist this population in transitioning to college. Additionally, to further increase confidence and importance of changing alcohol consumption behavior, implementation of brief intervention other than the components used for this EBP project should be attempted.

Several roles of the advanced practice nurse (APN) can be addressed in relation to nursing practice. The project leader fulfilled the role of clinician by assessing the need to reduce

alcohol in college students, implementing an intervention to accomplish this goal, and evaluating the results of the intervention. Additionally, the project leader met the role of leader working solely to develop, implement, and analyze the results of the project. With respect to the role of the consultant, the project leader mastered the best evidence used to answer the clinical question. The project leader also provided direction to RLCs, RAs, BACCHUS/GAMMA members, and nursing research students to successfully implement the multi-component intervention at fall freshmen orientation and residence hall “maintenance” sessions.

Theory. As previously mentioned, the TTM and DoI theoretical frameworks guided this EBP project. With respect to the TTM, the results of the project further support and strengthen this theory application. The TTM facilitated clarification of the project participants’ drinking behaviors, as individuals who engage in unhealthy behaviors must be motivated to change before actual unhealthy behaviors are modified. Furthermore, the TTM helped the project leader predict behavior occurring in college students. The project leader knew that if confidence and importance were enhanced, then behavior change would follow most likely. It is recommended that the TTM be used in the future for other EBP projects are that focus on changing unhealthy behaviors such as consuming alcohol in young adult college students.

The DoI helped organize this EBP project. As the project leader transitioned through each stage of the DoI, essential events occurred to help the project continuously more forward. . During the knowledge stage, new information about strategies to reduce alcohol consumption in college students was discovered and shared with key stakeholders. Knowledge sharing gave way to the persuasion and decision stages. Regarding the persuasion stage, key stakeholders sought additional information about the innovation to reduce alcohol consumption. With respect to the decision stage, the key stakeholders allowed the project leader to implement the intervention in the University setting. With implementation, the intervention was actually carried out on the project campus. The confirmation stage assisted the project leader in determining the effectiveness of the intervention in reducing alcohol consumption in college students. In the

confirmation stage, the project leader performed appropriate descriptive and inferential statistical tests and interpreted the results of these tests. Also, in the confirmation stage, key stakeholders can use EBP project findings to make the decision to continue using or permanently adopt the innovation. It is recommended that the DoI be used as a framework for similar EBP projects conducted in the future.

Research. More research appears warranted into the effectiveness of similar group-adapted interventions with college students. Several studies used as best evidence for this project also recommended that more research should be conducted where brief intervention is implemented in similar groups (LaBrie et al, 2006; LaBrie et al, 2007a; LaBrie et al, 2007b). With respect to the results of this EBP project, further research needs to be conducted to determine the effectiveness of the intervention. In this EBP project, success was achieved in increasing confidence and importance in changing alcohol consumption behavior. However, this intervention resulted in an increase of alcohol consumption in project participants. As mentioned in the overall limitations of this EBP project, it was uncertain which particular components of the intervention increased confidence and importance in changing alcohol consumption behavior. Specifically, the project leader was uncertain of the most effective components implemented at the residence hall “maintenance” sessions, since several activities that took place at these sessions. Thus, it is recommended that future research be conducted regarding the effectiveness of individual components of the intervention implemented in this EBP project. Although the best evidence discovered for this project yielded two reviews and five RCTs, more research should be conducted using an experimental design. There is a need for more experimental research to be conducted to reduce alcohol consumption in college students, as experimental designs establish a cause and effect relationship between the intervention tested to reduce alcohol consumption (i.e. the independent variable) and actual reductions in alcohol consumption (i.e. the dependent variable) (Polit & Beck, 2008).

During this project, the project leader fulfilled the role of researcher. Nursing research refers to an activity that is planned and systematic, leading to new knowledge or discovering solutions to problems (Polit & Beck, 2008). The project leader conducted multiple literature searches to discover the best evidence to answer the clinical question. Nursing research intends to establish support for various interventions, which can be applied in actual practice (Schmidt & Brown, 2009). The project leader found the best evidence that supported the reduction of alcohol consumption in college students. Evidence-based practice involves making clinical decisions based on the best evidence, emphasizing evidence from disciplined research (Polit & Beck, 2008). After finding the best evidence, the project leader devised an intervention to implement in a targeted population in a real-life setting.

Education. In the U.S., underage alcohol consumption is an ongoing problem experience by college students. Administrative personnel and faculty employed at academic institutions nationwide must understand the process of change linked to alcohol consumption. Additionally, individuals who are interested in implementing an intervention to reduce alcohol consumption, such as APNs, must appreciate the change process. Comprehending the change process allows for eventual and successful termination of this unhealthy behavior. Increased understanding of change also enables these individuals to make predictions regarding behavior changes in college students. Providing education to APNs, administrative personnel, and faculty working at universities can be accomplished by introducing the concepts of the TTM and the EBP literature that supports the change process.

In addition, knowledge is a stage in the DoI. In the knowledge stage, an individual has his or her first exposure to an innovation, but lacks information about the innovation (Rogers, 2003). During this stage of the process, through seeking additional information, the person develops a greater understanding with respect to the functions of the innovation. Concerning the literature, the project leader provided personal education regarding correct implementation of the intervention in a real-life setting. Descriptions of how and why these interventions are

effective in reducing the proportion of college students engaging in alcohol consumption were also provided in the literature. With respect to the organization, this knowledge was shared with key stakeholders of the project's setting. Through the knowledge sharing, the project leader fulfilled the role of educator, an essential role of the doctorally-prepared APN. The literature assisted key stakeholders in realizing that the project setting needed prevention efforts, rather than reactive strategies, for addressing alcohol consumption among its students. Thus, as new evidence surfaces about other or improved interventions to reduce alcohol consumption in college students, stakeholders need to be informed of these interventions. Implementing best evidence will increase the likelihood of meeting and maintaining the goal of reduced alcohol consumption.

Conclusion

This EBP project answered the PICOT question: In college freshmen, how does a multi-component intervention influence alcohol consumption over a four month period? In conclusion, the implementation of brief intervention, promotion of alcohol-free events, and reinforcement of campus alcohol policy improved drinkers' importance and confidence in reducing alcohol consumption behavior. Specifically, implementation of the multi-component intervention at fall freshmen orientation and residence hall "maintenance" sessions positively influenced participants' alcohol consumption behavior through increasing importance and confidence in changing alcohol consumption behavior. However, an increase in alcohol consumption among drinkers occurred. Based on this increase, additional future research is warranted to determine additional group-based interventions that are efficacious in reducing alcohol consumption in young adult college students. Research that supports the use of interventions that successfully reduce alcohol consumption in college student should be translated into practice, by implementing these effective strategies in collegiate settings.

References

AGREE Collaboration. (2001). Appraisal of Guidelines for Research and Evaluation (AGREE) Instrument. Retrieved from http://www.agreecollaboration.org/pdf/agreeinstrumentfinal.pdf

American College Health Association. (2011). *Alcohol, tobacco, and other drugs coalition.* Retrieved from http://www.acha.org/Committees_Coalitions_Task_For ces/atod.cfm

Babor, T. F., Higgen-Biddle, T. C., Saunders, J. B., & Monteiro, M. G. (2001). *AUDIT : The alcohol use disorders identification test: Guidelines for use in primary care.* (2nd ed.). Retrieved from http://whqlibdoc.who.int/hq/2001/who_msd_msb_01.6a.pdf

BACCHUS Network. (2011). *Mission*. Retrieved from http://www.bacchusgamma.org/

Centers for Disease Control and Prevention. (2010). *Alcohol and public health*. Retrieved from http://www.cdc.gov/alcohol/faqs.htm#healthProb

Centers for Disease Control and Prevention. (2011a). *Chronic disease promotion and health prevention.* Retrieved from http://www.cdc.gov/chronicdisease/resources/publications/aag/alcohol.htm

Centers for Disease Control and Prevention. (2011b). *Objectives.* Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/pdfs/HP2020objectives.pdf

Correia, C. J., Benson, T. A., & Carey, K. B. (2005). Decreased substance use following increases in alternative behaviors: A preliminary investigation. *Addictive Behaviors, 30*, 19-27. doi: 10.1016/j.addbeh.2004.04.006.

Correia, C. J., Carey, K. B., Simons, J., Borsari, B. E. (2003). Relationships between binge drinking and substance free activities in a sample of college students: A preliminary investigation. *Addictive Behaviors, 28,* 361-368. doi:

Croom, K., Lewis, D., Marchell, T., Lesser, M. L., Reyna, V. F., Kubicki-Bedford, L., Feffer, M. L., & Staiano-Coico, L. (2008). Impact of an on-line alcohol education course on behavior and harm for incoming first-year college students: Short-term evaluation of a randomized trial. *Journal of American College Health, 57,* 445-454. doi: 10.3200/JACH.57.4.445-454

Department of Health and Human Services. (2008). *2005 substance abuse and mental health administration national survey on drug use and health.* Retrieved from http://www.drugabusestatistics.samhsa.gov/NSDUH/2k5NSDUH/2k5results.htm

Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). *Brief alcohol screening and intervention for college students: A harm reduction approach.* New York, NY: The Guilford Press.

Fleming, M. F., Barry, K. L., & MacDonald, R. (1991). The alcohol use disorders identification test (AUDIT) in a college sample. *The International Journal of the Addictions, 26*(11), 1173-1185.

Foote, J., DeLuca, A., Magura, S., Warner, A., Grand, A., Rosenblum, A., & Stahl, S. (1999). A group motivational treatment for chemical dependency. *Journal of Substance Abuse Treatment, 17*(3), 181-192.

Ford, J. A. (2007). Alcohol use among college students: A comparison of athletes and non-athletes. *Substance Use & Misuse, 42,* 1367-1377. doi: 10.1080/10826080701212402

Haider, M. & Kreps, G. (2004). Forty years of diffusion of innovations: Utility and value in public health. *Journal of Health Communications, 9*, 3 -11. doi: 10.1080/108107730490271430.

Harris, T. R, Walters, S. T., & Leahy, M. M. (2008). Readiness to change among a group of heavy-drinking college students: Correlates of readiness and a comparison of measures. *Journal of American College Health, 57*, 325-330. doi: 2010092792

Henslee, A. M. & Correia, C. J. (2009). The use of freshmen seminar programs to deliver personalized feedback. *Journal of Drug & Alcohol Education, 53*(3), 39-52.

Indiana Collegiate Action Network. (2010). *Results of the Indiana College Substance Use Survey 2010: Valparaiso University.* Bloomington, IN: Indiana Family and Social Services Administration.

Johanna Briggs Institute. (2008). *The JBI approach to evidence-based practice*. Retrieved from http://www.joannabriggs.edu.au/Documents/JBI%20Approach%20to%20EBP%20Levels%20of%20Evidence%20Grades%20of%20Recommendation.pdf

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2010). *Monitoring the future national survey results on drug use, 1975-2009: Volume II, college students and adults ages 19-50.* Retrieved from http://monitoringthefuture.org/pubs/monographs/vol2_2009.pdf

LaBrie, J. W., Cail, J., Pedersen, E. R., & Migliuri, S. (2011). Reducing alcohol risk in adjudicated male college students: Further validation of group motivational enhancement intervention. *Journal of Child & Adolescent Substance Abuse, 20*, 82-98. doi: 10.1080/1067828X.2011.534369.

LaBrie, J. W., Huchting, K. K., Lac, A., Tawalbeh, S., Thompson, A. D., & Larimer (2009). Preventing risky drinking in first-year college women: Further validation of female-specific motivational-enhancement group intervention. *Journal of Studies on Alcohol and Drugs,* Supplement 16, 77-85.

LaBrie, J. W., Huchting, K., Tawalbeh, S., Pederson, E. R., Shelesky, K, Larimer, M., & Neighbors, C. (2008). A randomized motivational enhancement prevention group reduces drinking and alcohol consequences in first-year college women. *Psychology of Addictive Behaviors, 22*(1), 149-155. doi: 10.1037/0893-164X.22.1.149.

LaBrie, J. W., Lamb, T. F., Pedersen, E. R., & Quinlan, T. (2006). A group motivational interviewing approach reduces drinking and alcohol-related college students in adjudicated college students. *Journal of College Student Development, 47*, 267-280. doi: 10.1353/csd.2006.0031.

LaBrie, J. W., Pederson, E. R., Lamb, T. F., & Quinlan, T. (2007a). A campus-based motivational enhancement group intervention reduces problematic drinking in freshmen

male college students. *Addictive Behaviors, 32,* 889-901. doi: 10.1016/j.addbeh.2006.06.030.

LaBrie, J. W., Thompson, A. D., Huchting, K., Lac, A. & Buckley, K. (2007). A group motivational interviewing intervention reduces drinking and alcohol-related consequences in adjudicated college women. *Addictive Behaviors, 32*, 2549-2562. doi: 10.1016/j.addbeh.2007.05.014.

Melnyk, B. M. & Fineout-Overholt, E. (2010). *Evidence-based practice in nursing & healthcare: A guide to best practice.* Philadelphia, PA: Lippincott, Williams, and Wilkens.

Moreira, M. T., Smith, L. A., & Foxcroft, D. (2010). Social norms interventions to reduce alcohol misuse in university or college students. *The Cochrane Library, Issue 1,* 1-96.

Naimi, T. S., Brewer, R. D., Mokdad, A., Denny, C., Serdula, M. K., & Marks, J. S. (2003). Binge drinking among U. S. adults. *Journal of American Medical Association, 289(1),* 70-75. doi: 10.1001/jama.289.1.70

National Institute on Alcohol Abuse and Alcoholism. (2002*). A call to action: Changing the culture of drinking at U.S. colleges*. Retrieved from http://www.collegedrinkingprevention.gov/media/TaskForceReport.pdf

National Institute on Alcohol Abuse and Alcoholism. (2006). *Underage drinking.* Retrieved from http://pubs.niaaa.nih.gov/publications/aa67/AA67.pdf

National Prevention Council. (2011*). Nation prevention strategy: American's plan for better health and wellness*. Retrieved from http://www.healthcare.gov/center/councils/nphpphc/strategy/report.pdf

Nelson, T. F., Naimi, T. S., Brewer, R. D., & Wechsler. (2005).The state sets the rate: The relationship of college binge drinking to state binge drinking rates and selected state alcohol control policies. *American Journal of Public Health*, 95,441-446.

Nelson, T. F., Toomey, T. L., Lenk, K. M., Ericksen, D. J., & Winters, K. C. (2010). Implementation of NIAAA college drinking recommendations: How are colleges doing six years later? *Alcoholism, 34*, 1687-1693. doi: 10.1111/j.1530-0277.2010.01268.x

Office of Juvenile Justice and Delinquency Prevention. (2005). *Drinking in America: Myths, realities, and prevention.* Retrieved from http://www.udetc.org/documents/Drinking_in_America.pdf

O'Malley, P. M. & Johnston, L. D. (2002). Epidemiology of alcohol and other drug use among American college students. *Journal of Studies on Alcohol*, Supplement 14, 23- 39.

Polit , D. F. & Beck, C. T. (2008). *Nursing research: Generating and assessing evidence for nursing practice.* (8th ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.

Presley, C. A., Meilman, P. W., & Leichliter, J. S. (2002). College factors that influence drinking. *Journal of Studies on Alcohol, Supplement 14,* 82-90. doi: 2002-02965-006

Prochaska, J. O. (1994). Strong and weak principles for progressing from precontemplation to action on the basis of twelve problem behaviors. *Health Psychology, 13*(1), 47-51.

Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology, 51*, 390-395.

Prochaska, J. O. & DiClemente, C. C. (1986). Toward a comprehensive model of change. In Miller, W. R. & Heather, N. (Eds). *Treating addictive behaviors: Process of change.* New York: Plenum Press. Retrieved from http://www.uri.edu/research/cprc/Publications/PDFs/ByTitle/Toward%20a%20comprehensive%20model%20of%20change.pdf

Prochaska, J. O. & Velicer, W. F. (1997). The transtheoretical model of behavioral change. *American Journal of Health Promotion, 12*(1), 38-48. Retrieved from http://www.uri.edu/research/cprc/Publications/PDFs/ByTitle/The%20Transtheoretical%20model%20of%20Health%20behavior%20change.pdf

Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., Fiore, C., Harlow, L. L., Redding, C. A., Rosenbloom, D., & Rossi, S. R. (1994). Stages of change and decisional balance for 12 problem behaviors. *Health Psychology, 13*, 39-46.

Retrieved from http://www.uri.edu/research/cprc/Publications/PDFs/ByTitle/Stages%20of%20Change%20and%20decisional%20balance%20for.pdf

Reifman, A. & Watson, W. K. (2003). Binge drinking during the first semester of college: Continuation and desistance from high school patterns. *Journal of American College Health, 52,* 73-81. doi: 2004138404

Reilly, D. W. & Wood, M. D. (2008). A randomized test of a small-group interactive social norms intervention. *Journal of American College Health, 57*(1), 53-60.

Rogers, E. M. (1962). *Diffusion of Innovations*. (1st ed.). New York, NY: Free Press.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Rogers, E. M. (2004). A prospective and retrospective look at the diffusion model. *Journal of Health Communication, 9,* 13-19. doi: 10.1080/1081073049271449.

Schmidt, N. A. & Brown, J. M. (2009). *Evidence-based practice for nurses: Appraisal and application of research.* Sudbury, MA: Jones and Bartlett Publishers.

Substance Abuse & Mental Health Services Administration. (2010). Results from the 2009 National Survey on Drug Use and Health: Volume I: Summary of national findings. Retrieved from http://oas.samhsa.gov/NSDUH/2k9NSDUH/2k9ResultsP.pdf

Trockel, M., Wall, A., Williams, S. S., & Reis, J. (2008). Secondhand consequences of drinking behavior on drinking norms. *Journal of Psychology,* 142(1), 57-69. doi: 10.3200/JRLP.142.1.57-70

Turner, J. Perkins, W., & Bauerle, J. (2008). Declining negative consequences related to alcohol misuse among students exposed to a social norms marketing campaign intervention on a college campus. *Journal of American College Health, 56*(1), 85-93. doi:

United States Department of Health and Human Services. (2007). *The surgeon general's call to action to prevent and reduce underage drinking*. Retrieved from http://www.surgeongeneral.gov/topics/underagedrinking/calltoaction.pdf

Valparaiso University (2011a). *Campus profile*. Retrieved from http://www.valpo.edu/admission/campus.php

Valparaiso University. (2011b). *Fifth hour events.* Retrieved from http://www.valpo.edu/valpocore/fifth_hour.php

Valparaiso University. (2011c). *Student guide to university life*. Retrieved from http://www.valpo.edu/generalcounsel/assets/docs/stguide.pdf

Vasilaki, E. I., Hosier, S. G., & Cox, W. M. (2006). The efficacy of motivational interviewing as a brief intervention for excessive drinking: A meta-analytic review. *Alcohol & Alcoholism, 41*, 328-335.

Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. *Journal of the American Medical Association, 272*, 1672-1677. doi: 10.1001/jama.272.21.1672

Wechsler, H., Dowdall, G. W., Davenport, A., & Castillo, S. (1995). Correlates of college student binge drinking. *American Journal of Public Health, 85,* 921-926. doi: 1996003318

Wechsler, H., Lee, J. E., Gledhill-Hoyt, J., & Nelson, T. F. (2001). Alcohol use and problems at colleges banning alcohol: Results of a national survey. *Journal of Studies on Alcohol, 62,* 133-141. doi: 2001-17346-001

Wechsler, H., Lee, J. E., Kuo, M., Seibring, M., Nelson, M. S., & Lee, H. (2002). Trends in college binge drinking during a period of increased prevention efforts: Findings from 4 Harvard School of Public Health College Alcohol Study surveys: 1993-2001. *Journal of American College Health, 50*, 203-217. doi: 10.1080/07448480209595713

Wechsler, H. & Nelson, T.F. (2008). What we have learned from the Harvard school of public health college alcohol study: Focusing attention on college student alcohol consumption and the environmental conditions that promote it. *Journal of Studies on Alcohol and Drugs, 69,* 481-490.

White, H. R. & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. *Journal of Studies on Alcohol, 50*(1), 30-37.

Whittemore, R. (2005). Combining evidence in nursing research: Methods and implications. *Nursing Research, 54*(1), 56-62.

Wood, M. D., Capone, C., Laforge, R., Erickson, D. J., & Brand, N. (2007). Brief motivational intervention and alcohol expectancy challenge with heavy drinking college students: A randomized factorial study. *Addictive Behaviors, 32,* 2509-2528. doi: 10.1016/j.addbeh.2007.06.01

World Health Association. (2001). Young people and alcohol. Retrieved from http://www.ias.org.uk/btg/policyeu/pdfs/2001-declarationyp.pdf

AUTOBIOGRAPHICAL STATEMENT

Kimberley L. Jelinek

Miss Jelinek graduated from Indiana University with a baccalaureate degree in the science of biology in 2001. While employed as a phlebotomist, she enrolled in an accelerated nursing program at Valparaiso University and earned a baccalaureate degree in nursing in 2004. Miss Jelinek works in critical care as a staff nurse at a local hospital and has been employed at a variety of hospitals throughout the United States as a travel nurse. In 2009, she returned to Valparaiso University, embarking on her Doctorate of Nursing Practice, specializing in Family Nurse Practice, with plans for completion in 2012. Since 2010, she has been a clinical instructor for undergraduate baccalaureate nursing students in the specialty of rehabilitation nursing. Reducing alcohol consumption and promoting alcohol abstinence in college freshmen are her scholarly interests. After becoming a board certified family nurse practitioner, Miss Jelinek has interests to work as a family nurse practitioner in the acute care or primary care setting. She is member of the American Nurses Association and the Coalition of Advanced Practice Nurses of Indiana.

Appendix A

Best Practice Model Recommendation

1. Implement brief intervention, including the components of:

    - Self- assessment of alcohol consumption

    - Normative feedback

    - Estimated blood alcohol content education

    - Decisional balance

2. Promotion of alcohol-free events

3. Awareness and reinforcement of campus alcohol policy

    * Deliver intervention in a group-format, targeting college freshmen.

Appendix B

Recruitment Speech

Hello. My name is Kim Jelinek and I am a doctoral student at the Valparaiso University College of Nursing. This year I must complete my doctoral project and I am asking you to help me. How can you help? Well, all of you are very special as the doctoral project that I have designed involves reducing alcohol consumption in college freshmen, specifically. Thus, you can help me by simply choosing to participate in my project.

You may ask, “What do I have to do to participate? Being new to college, I am so busy!” And the answer is, “Not much”. If you decide to participate, you will complete a short survey at the beginning of the project, receive information via e-mail, have the opportunity to attend a one-hour, fun-filled, interactive residence hall session around September/October in the comfort of your own residence hall, and complete an on-line survey at the end of the project.

Another question that you may ask is “What is in this project for me?” The answer is, “A lot!” You have the opportunity to win gift certificates to local businesses. Additionally, the resident hall “maintenance” session can count as the credit that you must earn in Core 5th Hour, a course that all of you are currently enrolled.

So, you may ask, “How do I sign-up to help Kim with her doctoral project?” In the handout of information that you received at the beginning of this orientation session you will notice a consent form and survey that follows. Take 5-10 minutes to read and sign the consent, as well as, complete the initial survey. Then, return the survey to me at the end of this presentation. Next, all you have to do is check your e-mail to become informed regarding information related to the project. Some of these e-mails will be reminders, for instance, to attend the resident hall session or complete the short follow-up survey. Other e-mails may be brief bits of informative material concerning the project.

Thank you for your time! Welcome to Valparaiso University!

Appendix C

Pre-Project Survey Consent Form

Code: _____

Consent Form:

EBP Project: A Multi-Component Intervention to Reduce Alcohol Consumption in College Freshmen

I am being asked to voluntarily participate in an Evidenced-Based Practice (EBP) project conducted by the doctoral student from Valparaiso University College of Nursing.

If I agree to take part in this project, I will complete pre- and post- project survey, receive informational e-mails regarding alcohol avoidance, and have the opportunity to attend a Residence Hall session on alcohol avoidance. It will take approximately 10 minutes to complete each of the pre- and post-project surveys.

Students who participate in this project will be eligible to win a $10 gift certificate to a local business. Additionally, those who attend the Residence Hall session will earn Core 5th Hour credit.

I must be at least 18 years old to participate. I know that taking part in this project is up to me, and I am free to stop participating at any time without having any impact on my standing at Valparaiso University. Additionally, I know that my responses given on the survey not have any impact on my standing at Valparaiso University. I know that all information about me will remain confidential. I know that only a code number will identify me as a participant and no personal information will be used in the reporting or publishing of the project's results.

There is no anticipated risk for injury or harm to me by participating in this project. By sharing my insights, others will better understand college freshmen drinking behavior. I understand that information obtained from this project may be used in professional publications and/or presentations.

I have read and understand this consent from and I agree to participate in this project by signing the consent and completing the survey contained in the freshmen orientation.

If I have any questions about this project, I can contact Kim Jelinek by phone or e-mail: Kimberley.Jelinek@valpo.edu

This project has been approved by the Institutional Review Board (IRB) of Valparaiso University. If you have any questions regarding IRB approval, you may contact the IRB office at 219-464-5298.

Name (Print): _____

Signature: _____

Appendix D

Pre-Project Survey for EBP Project

Code: _____

EBP Project Pre-Project Survey

Thank you for taking the time to complete this survey!

Section 1: *Directions**: Please circle your response to each question below or write your response in the blank.*

1. What is your age? _____ years

2. What is your gender? Male Female

3. What best describes your ethnicity? Caucasian African American Asian Hispanic Pacific Islander Native American Other

4. How often do you have an alcoholic beverage?

Never Monthly or less 2-4 times a month 2-3 times a week 4 or more times a week

5. About how many standard alcoholic beverages do you have during a typical drinking occasion? Please use the definition of a standard alcoholic beverage:

standard alcoholic beverage = one 12 oz. BEER **or** one 4 oz. glass of WINE **or** one shot of HARD LIQUOR

1 - 2 3 - 4 5 - 6 7 - 9 10 or more

6. How often do you have 6 or more alcoholic beverages during a typical drinking occasion?

Never Less than monthly Monthly Weekly Daily or almost daily

Please indicate how much you agree or disagree with the following statements.

7. I prefer to attend alcohol-free events.

Strongly agree Agree Neither agree or disagree Disagree Strongly disagree

8. I prefer to associate myself with people (i.e. friends, family, significant others) who drink alcohol.

Strongly agree Agree Neither agree or disagree Disagree Strongly disagree

9. How often do *your friends* have an alcoholic beverage?

Never Monthly or less 2-4 times a month 2-3 times a week 4 or more times a week

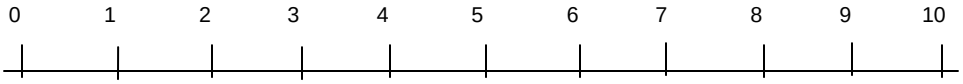
10. About how many standard alcoholic beverages do *your friends* have during a typical drinking occasion? Please use the definition of a standard alcoholic beverage:

standard alcoholic beverage = one 12 oz. BEER **or** one 4 oz. glass of WINE **or** one shot of HARD LIQUOR

1 - 2 3 - 4 5 - 6 7 - 9 10 or more

Section 2: ***Directions****: Below, mark where you are on following rulers. Please place only* ***ONE*** *hash mark on each of the rulers. If you do not drink alcohol, please circle "I do not drink alcohol."*

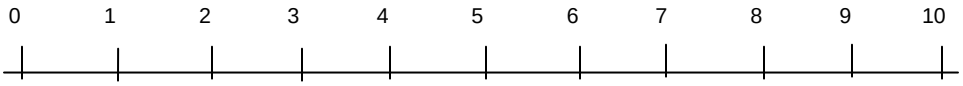
11. How important is it to you to make a change in your alcoholic drinking?



I do not drink alcohol.

Not important Very important

12. How confident are you that you could make a change in your alcoholic drinking if you wanted to?



I do not drink alcohol.

Not confident Very confident

Section 3: ***Directions****: Use the quotation below and circle the response that best completes your answer to the following statements.*

"How many times has this happened to you while you were drinking or because of your drinking during the last three months:"

13. Not able to do your homework or study for a test?

None 1-2 times 3-5 times More than 5 times

14. Went to work or school high or drunk?

None 1-2 times 3-5 times More than 5 times

15. Been injured as a result of your drinking (i.e. got into a fight, sexually assaulted, etc.)?

None 1-2 times 3-5 times More than 5 times

16. Caused shame or embarrassment to someone?

None 1-2 times 3-5 times More than 5 times

17. Neglected your responsibilities?

None 1-2 times 3-5 times More than 5 times

18. Friends or relatives avoided you?

None 1-2 times 3-5 times More than 5 times

19. Felt that you needed *more* alcohol than you used to in order to get the same effect?

None 1-2 times 3-5 times More than 5 times

20. Tried to control your drinking? (tried to drink at only certain times of the day or in certain places)

None 1-2 times 3-5 times More than 5 times

21. Missed a day (or part of the day) of school or work?

None 1-2 times 3-5 times More than 5 times

22. Suddenly found yourself in a place that you could not remember getting to?

None 1-2 times 3-5 times More than 5 times

23. Had a fight, argument, or bad feeling with a friend or family member?

None 1-2 times 3-5 times More than 5 times

24. Was told by a friend, neighbor or relative to stop or cut down drinking?

None 1-2 times 3-5 times More than 5 times

Thanks again for taking the time to complete this survey! Your efforts are much appreciated!

Appendix E

Post-Project Survey Consent Form

Consent Form:

EBP Project: A Multi-Component Intervention to Reduce Alcohol Consumption in College Freshmen

I am being asked to complete a survey at the end of this EBP project. I must be at least 18 years old to complete the consent and survey. Additionally, I know that my responses given on the following survey will not have any impact on my standing at Valparaiso University. I know that all information about me will remain confidential. I know that only a code number will identify me as a participant and no personal information will be used in the reporting or publishing of the project's results.

I understand that information obtained from this survey may be used in professional publications and/or presentations.

If I have any questions about this project, I can contact Kim Jelinek by phone or e-mail: Kimberley.Jelinek@valpo.edu

I have read and understand this consent form and I agree to participate in this survey by clicking on the "Start Survey" box

Appendix F

Post-Project Survey for EBP Project

Code: _____

EBP Project Post-Intervention Survey

Thank you for taking the time to complete this survey!

<u>Section 1</u>: *Directions**: Please select your response to each question below or type your response in the blank.***

1. What is your age? _____ years

2. What is your gender? Male Female

3. What best describes your ethnicity? Caucasian | African American | Asian | Hispanic | Pacific Islander | Native American | Other

4. In the last 3 months, how often did you have an alcoholic beverage?

Never | Monthly or less | 2-4 times a month | 2-3 times a week | 4 or more times a week

5. In the last 3 months, about how many standard alcoholic beverages did you have during a typical drinking occasion? Please use the definition of a standard alcoholic beverage:
standard alcoholic beverage = one 12 oz. BEER **or** one 4 oz. glass of WINE **or** one shot of HARD LIQUOR

1 - 2 | 3 - 4 | 5 - 6 | 7 - 9 | 10 or more

6.In the last 3 months, how often did you have 6 or more alcoholic beverages during a typical drinking occasion?

Never | Less than monthly | Monthly | Weekly | Daily or almost daily

Please indicate how much you agree or disagree with the following statements.

7. I prefer to attend alcohol-free events.

Strongly agree | Agree | Neither agree or disagree | Disagree | Strongly disagree

8. I prefer to associate myself with people (i.e. friends, family, significant others) who drink alcohol.

Strongly agree | Agree | Neither agree or disagree | Disagree | Strongly disagree

9. In the last three months, how often did *your friends* have an alcoholic beverage?

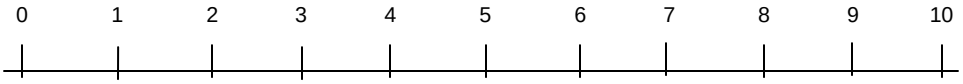
Never | Monthly or less | 2-4 times a month | 2-3 times a week | 4 or more times a week

10. In the last three months, about how many standard alcoholic beverages did *your friends* have during a typical drinking occasion? Please use the definition of a standard alcoholic beverage:
standard alcoholic beverage = one 12 oz. BEER **or** one 4 oz. glass of WINE **or** one shot of HARD LIQUOR

1 - 2 | 3 - 4 | 5 - 6 | 7 - 9 | 10 or more

Section 2: ***Directions****: Below, mark where you are on following rulers. Please select only* ***ONE*** *number on each of the rulers. If you do not drink alcohol, please select "I do not drink alcohol."*

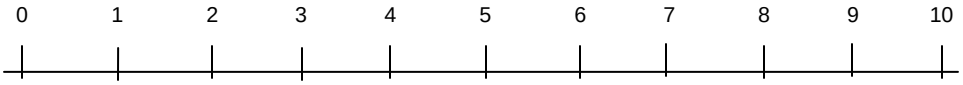
11. How important is it to you to make a change in your alcoholic drinking?



I do not drink alcohol.

Not important Very important

12. How confident are you that you could make a change in your alcoholic drinking if you wanted to?



I do not drink alcohol.

Not confident Very confident

Section 3: ***Directions****: Use the quotation below and select the response that best completes your answer to the following statements.*

"How many times has this happened to you while you were drinking or because of your drinking during the last three months:"

13. Not able to do your homework of study for a test

None 1-2 times 3-5 times More than 5 times

14. Went to work or school high or drunk

None 1-2 times 3-5 times More than 5 times

15. Been injured as a result of your drinking (i.e. got into a fight, sexually assaulted, etc.)?

None 1-2 times 3-5 times More than 5 times

16. Caused shame or embarrassment to someone

None 1-2 times 3-5 times More than 5 times

17. Neglected your responsibilities

None 1-2 times 3-5 times More than 5 times

18. Friends or relatives avoided you

None 1-2 times 3-5 times More than 5 times

19. Felt that you needed *more* alcohol than you used to in order to get the same effect

None 1-2 times 3-5 times More than 5 times

20. Tried to control your drinking (tried to drink at only certain times of the day or in certain places, that is tried to change your pattern of drinking)

None 1-2 times 3-5 times More than 5 times

21. Missed a day (or part of the day) of school or work

None 1-2 times 3-5 times More than 5 times

22. Suddenly found yourself in a place that you could not remember getting to

None 1-2 times 3-5 times More than 5 times

23. Had a fight, argument, or bad feeling with a friend or family member

None 1-2 times 3-5 times More than 5 times

24. Was told by a friend, neighbor or relative to stop of cut down drinking

None 1-2 times 3-5 times More than 5 times

Section 4: *Directions*: *Please select your response to each question below or type your response in the blank.*

25. During this semester in which project strategies did you participate? Select all that apply.

____ Freshman Fall Orientation (Sunday, August 21, 2011)
____ E-mail messages about drinking statistics or alcohol-free events (during the weeks of September 11, 2011 and October 23, 2011)
____ Twitter messages about drinking statistics or alcohol-free events (during the weeks of September 11 & 18 and October 23, 2011)
____ "It's Party Time" Residence Hall Session (September 28, 2011 in Alumni or October 5, 2011 in Lankenau)

26. Please indicate how Freshman Fall Orientation affected your decision to reduce drinking or maintain alcohol abstinence.

Did not attend	Did not affect	Mildly affected	Moderately affected	Strongly affected

27. Please indicate how receiving e-mails about drinking statistics and alcohol-free events affected your decision to reduce drinking or maintain alcohol abstinence.

Did not attend	Did not affect	Mildly affected	Moderately affected	Strongly affected

28. Please indicate how receiving Twitters about drinking statistics and alcohol-free events affected your decision to reduce drinking or maintain alcohol abstinence.

Did not attend	Did not affect	Mildly affected	Moderately affected	Strongly affected

29. Please indicate how attending "It's Party Time" Residence Hall Session affected your decision to reduce drinking or maintain alcohol abstinence.

Did not attend	Did not affect	Mildly affected	Moderately affected	Strongly affected

30. In *your* opinion, what strategy do *you* think would be effective to reduce alcohol consumption or maintain alcohol abstinence in freshmen students attend Valparaiso University?

_____

_____

Thanks again for taking the time to complete this survey! Your efforts are much appreciated!

Appendix G

Post-Project E-mail Message

Dear Project Participant,

This is a request for you to complete a brief survey, so that I can collect more data for the doctoral project in which you agreed to participate. Many of the questions are similar to items on the pre-project survey that you completed during Fall Freshmen Orientation on Sunday, August 21, 2011 at the beginning of the semester. By completing this survey, you will be eligible to win a gift certificate from BestBuy®. An e-mail message will be sent to the winners of the gift certificates. Please click on the link below to begin the survey.

Once again, thank you for your participation in my doctoral project!

Kim Jelinek, BSN, RN, DNP student

Link provided